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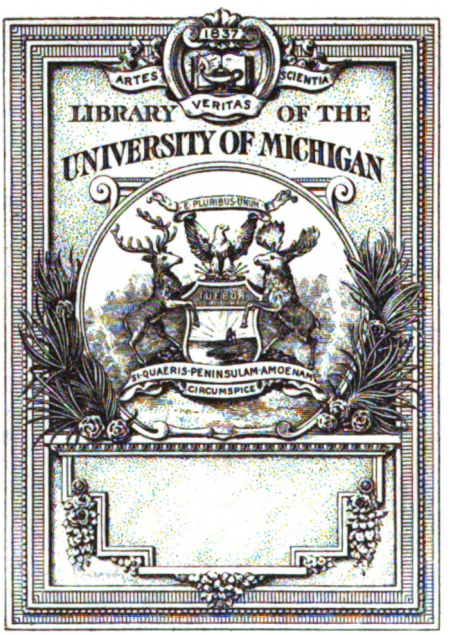

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THE

CHICAGO

Medical Journal & Examiner

EDITOR:

S. J. JONES, M.D., LL.D.

VOLUME LVII.

JULY TO DECEMBER, 1888.

CHICAGO:
RAND, McNALLY & COMPANY, PRINTERS.
1888.

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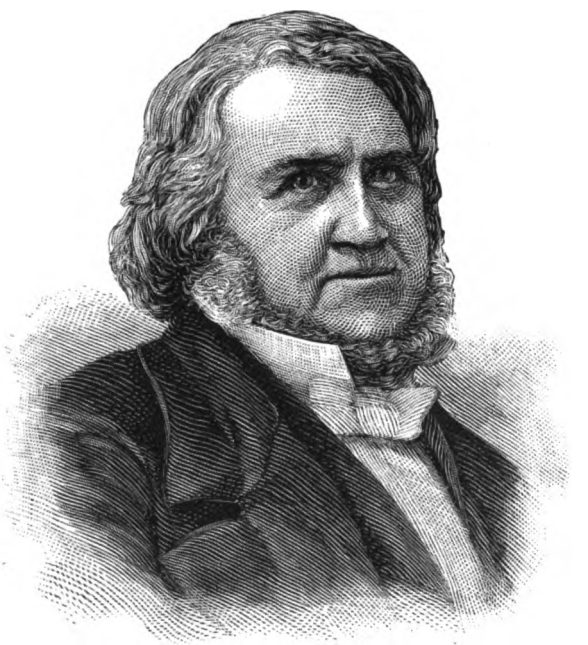

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The Medical Journal and Examiner.

NUMBER 1.

ORIGINAL COMMUNICATIONS.

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The Medical Journal and Examiner.

VOLUME LVII. JULY, 1888. NUMBER 1.

ORIGINAL COMMUNICATIONS.

REPORT OF TWO INTERESTING CASES OF SKIN DISEASE: I. URTICARIA CHRONICA RECURRENS. II. DERMATITIS MEDICAMENTOSA.

BY ELBERT WING, A. M., M. D.,*
Demonstrator of Pathology at Chicago Medical College.

I.—CHRONIC RECURRENT URTICARIA.

The patient, a widow 37 years of age, was employed as housekeeper in one of the public institutions of this city when her case came under observation, on March 8, 1888. For the sake of brevity only those facts in the family history which have an evident relation to this case are reported.

The patient's father died when she was a child, but she knows, however, that he was subject to attacks which resemble her own, and that in his case the throat was at times the site of the lesion. She also knows that one of these attacks in which the throat was involved proved fatal. Her mother is 66 years old, and except occasional attacks, during the last few years, of what is called "neuralgia of the stomach and bowels," she has enjoyed excellent health. Two of her brothers have suffered with the same localized swellings for which she now seeks relief. One of them has been a much greater sufferer than she herself, and the other has had much lighter attacks. One brother and one sister have been free from the trouble.

In all cases in which the disease has occurred in the family it has frequently recurred, and has been obstinately chronic. The essential clinical features have been so similar in all of the cases that a description of this patient's case will answer for the others.

In regard to her health during childhood and adolesence, she says that she has had no complaint except the localized swellings. These, however, began as early in her life as she can remember, and she has never been free from them for any considerable period of time. Although closely and repeatedly questioned in regard to gastric troubles, she insists that she had none before her twentieth year.

Since that time, however, she has been troubled with gastric flatulence, which is at times very moderate, and others extreme. This begins soon after meals, and is more marked after the injestion of certain kinds of food. Uncooked apples produce the greatest disturbance, and even the smallest piece will bring on an attack. Associated with this flatulence there is regurgitation of both sour fluids and of food. The regurgitated food is always intensely sour to the taste, and it comes up in the throat at all hours after eating. She says that she has repeatedly detected food in

*Read before the Chicago Medical Society, July 2, 1888.

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this way, which had been eaten twenty-four hours before its regurgitation.

For years her bowels have been obstinately constipated. She has the often vicious habit of waiting for a prompting, and frequently passes three days without defecation. She is not troubled with intestinal flatulence.

Menstruation began when she was thirteen and one-half years old and has presented no markedly unusual features. She was married in her twentieth year, has one son fifteen years old and has had no miscarriages. She, however, complains of an aching sensation in the sacral region, which is rather constantly present and always worse during the catamenial period. Two years ago she was told by a physician that her uterus was retroverted, and at his suggestion wore an internal pessary which she thinks diminished this sacral pain. She was, however, treated at the same time for stomach troubles, also with benefit.

She has a moderate amount of intermittent cutting pain in the left ovarian region, but has not observed that it bears any relation to her menstrual periods. She takes cold easily, has severe so-called head-colds, with a free secretion from the nasal and bronchial mucous membranes, but at other times is free from cough.

She is occasionally troubled with what she calles "a humor" on the inner surface of the thighs, but it is not now present, and she is not aware that it bears any relation to her other troubles.

What, in the opinion of the patient, constitutes her ailment, and what she seeks relief for is the occurrence of the localized swellings and their associated gastric disturbances.

The first symptom of one of these attacks is a sense of numbness and tingling in the part of the surface involved. The skin in this area begins to feel thick and hard, and it is swollen and moderately and uniformly red and hot. It becomes moderately œdematous, the itching and pain on pressure are very slight, and there are no white or yellowish-white areas over these tumor-like swellings at any time. When the area involved is easily inspected by the patient, as upon the extremities, she has noticed a streak of somewhat brighter red than that of the general surface which passes across it in the course of the lymphatics. This always terminates at the edges of the swelling.

The tumefaction proceeds steadily to the maximum, which is usually reached in twenty-four hours, and it is rather longer in disappearing than in developing. In all attacks the swelling is very marked, and in some its limit seems to be only that of the possible distensibility of the skin, which is frequently left covered with large blebs when the swelling subsides. For example, the hands become so swollen that the fingers are extended and widely separated, and the tips of the thumb and little finger cannot be brought into apposition. The face swells until the eyes are completely closed, and when the arms are attacked, sleeves which ordinarily are loose cannot be drawn over them. When the swelling begins upon the upper or fore arm it rarely extends beyond the elbow.

Any part of the body, or several parts at the same time, may be attacked, as both feet and ankles, or one foot and one hand. In the latter case a foot and hand of the same side are usually attacked. The patient has had mild, but never very severe, attacks in the pharynx.

She has a chronic gastric catarrh of mild severity, which, at the time of these attacks, is sometimes subject to violent exacerbations. So far as she has observed, the localized swellings precede the gastric symptoms. In severe attacks there is very great nausea with frequent emesis, and sharp colicky pain in the stomach. At these times the stomach is absolutely intolerant of both liquids and solids, and the vomited matters are intensely sour. This gastric intolerance continues, after severe paroxysms for several days. For a number of years the colicky pains in the stomach have

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grown less severe. There is no intestinal disturbance at all in connection with these attacks.

While she is usually a light sleeper, during these attacks the patient is exceedingly somnolent and complains of great lassitude.

Until recent years the attacks have invariably occurred with the menstrual periods, but they have always, and do now occur at other times. Fatigue following hard physical exertion has always been a sure forerunner of an attack, and any work which requires much stooping is certain to bring one on. A smart blow upon any part of the body will produce at the point of traumatism a swelling which runs the usual course, without, however, the associated stomach troubles. She has never observed the phenomenon which gives rise to the term *urticaria factitia.*

Physical examination reveals a woman of strong, robust appearance, considerable adipose tissue, florid face, and fair hair. There is a mild subacute nasal catarrh present. The heart is slightly displaced upward. Sounds are normal. In the left infrascapular region there is some interrupted respiration, and the vesicular murmur over this entire lung is slightly less than over the other one. The stomach is distended with gas, but there is no evidence of gastric ectasia. The ascending and transverse divisions of the colon are moderately distended with gas.

The uterus is possibly retroverted a very little, is of the normal depth, and freely movable without pain. There is no tenderness at all about the pelvic viscera.

An examination of the urine was not thought necessary, and was not made.

The patient was told that the gastric catarrh was probably the cause of her troubles, and a hopeful prognosis given her.

The customary advice in regard to diet and the movements of the bowels was forcibly presented to her, and she was advised to take five drops of the dilute hydrochloric acid fifteen minutes before meals, three times daily, and to increase the dose gradually to ten drops. She was also requested to take Johnson & Johnson's papoid and soda tablets, one immediately after, and one more one hour after eating, three times daily. These tablets each contain one grain of papoid and two of bicarbonate of sodium.

On June 15, fourteen weeks after the first consultation, the patient was seen in an attack, the first of any severity since she began treatment. She says that for a week she has been acting as cook for the institution. A few days after she began cooking she began to have what she calls warning attacks of moderate swellings. To-day these have culminated. Both forearms and hands are very greatly swollen, but only very slightly, and on very deep and firm pressure, œdematous. The swollen surface is only moderately red, and the burning and itching is very slight. The stomach is moderately deranged. Menstruation is not present.

The patient says that since she began the treatment mentioned, until she began cooking, she was free from the local swellings, and also from the gastric troubles. The diagnosis seems reasonably certain, since, although the swellings resemble the erythemas in some respects, they very closely correspond with those in the case reported by Milton, and designated by Kapasi, as giant urticaria (Riesenurticaria). (Kapasi's P. u. T. der Hautkrankheiten, 2te Auflage, s. 307.)

II.—Dermatitis medicamentosa.

The patient in this case is a professor of Greek in one of the colleges of this State, and sends his own description of the case. It is graphic enough for the purpose of diagnosis, and is submitted in his own language.

He writes, "When otherwise in my usual excellent health, I took cold this week, and upon the doctor's prescription took one two-grain cinchonidia pill. In

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three hours my knuckles and hands swelled up, and for forty-eight hours they itched and burned most intolerably, making sleep impossible during the first night. This is the third time within a year that this result has followed a dose of quinine or cinchonidia in my case, and I have not taken these drugs at other times."

The authors of works on diseases of the skin classify these cases somewhat differently. Thus, Eichhorst (Pathologie und Therapie, 1te Auflage, s. 230) refers to them under the heading *Erythema exudativum toxicum.* Kapasi (P. und T. der Hautkrankheiten, s. 310) places them among the urticarias. Hyde (Diseases of the Skin, 2d edition, p. 184) adopts the classification of the American Dermotalogical Association, which is the one employed in this report, and refers to Morrow's report of sixty cases (*N. Y. Med. Jour.*, March, 1880, p. 244) of dermatitis caused by the ingestion of cinchona and its alkaloids. He says, "The prevailing type is erythematous, the rash being a bright vivid hue, disappearing on pressure and resembling scarlatina."

Hyde and Eichhorst call attention to the fact that frequently in these cases the quantity of the article taken bears no relation to the violence of the clinical symptoms, and Kapasi says that experiments show that the results are independent of a knowledge, on the part of the patient, of the ingestion of the offending substance.

3366 Cottage Grove Avenue.

BINOCULAR ASTIGMATISM (?)

BY S. O. RICHEY, M. D.
Washington, D. C.

In a paper read in the Section on Ophthalmology, of the American Medical Association, by Dr. H. Culbertson, which is to be found in *The American Journal of Ophthalmology*, vol. v, 1888, p. 118, we may read as follows: "I have not infrequently encountered cases of astigmatism, in which, after having corrected the error in each eye separately, and on testing both eyes simultaneously in binocular vision, have found that vision proximum was not perfect, and, in order to attain normal vision near at hand in binocular sight, the angle denoting the axis of the cylindrical glass must be changed in one or both eyes. * * If the patient looks upon the floor, it will seem to incline to the right or left, and, on changing the axis of one or both cylinders, the surface will appear level."

The cases reported in illustration range, in age, from 18 to 34 years. He suggests the disturbance of the action of the extrinsic muscles in explanation.

This condition, which the writer calls "binocular astigmatism," is not uncommon, and, while I can recall no case in my experience so young as 18 years of age, many have come to my notice, after the age of presbyopia.

In such cases, vertical parallel lines appear to converge, generally toward the lower end, but often in the upward direction, and this remains true whether the object be near or at a distance. This peculiarity of vision with the correcting glasses is remarked as a curiosity; discomfort and annoyance are derived from the apparent slanting of the surface upon which he walks, one side of the pavement seeming to be higher than the other.

I have found, however, that even presbyopes, if they persist in wearing the cylindricals, as properly fitted with the aid of a mydriatic, will adjust themselves to the altered condition, and, with the lenses, find greatest comfort.

Dr. Culbertson's theory in explanation may be the correct one, but one of two others has seemed to me more satisfatory.

The relation of apparent *size* and *distance* is an individual experience. To a myope, all objects seen at all are larger and less clearly defined than to an emmetrope. The myope is accustomed to see only objects near to him with distinctness; therefore a distant object *is* near, and, when his

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myopia is first corrected, all objects seem to be nearer to him than is natural; the floor rises, and stairways are not exactly safe, because of this impression. To a hyperope, on the other hand, objects at a given distance appear smaller than to an emmetrope, and a + lens = H increases the apparent size of everything, and the distance therefore seems increased.

When either a myope, or a hyperope has worn a correcting glass long and constantly enough for adjustment he loses these false impressions and has comfortable vision. The occasional and judicious use of homatropine shortens greatly this period in hyperopes, astigmatics, and aniso-metropes; and for this reason, I have concluded that the cause of the difficulty might be found in the accommodation.

The experience of myopes, however, has led me to suspect a more central locus.

To illustrate; if an astigmatic sees a level floor inclining from right to left, an experience of years teaching him all the while that it *is* level, he finally accepts as a fact that all level surfaces *appear* to incline from right to left, and his mind habitually and unconsciously makes allowance for this. After he has acquired this habit he is enabled, by a correcting glass, to see level surfaces as they actually exist. As his cerebration has, in this particular, been unconscious, he continues unconsciously to make allowance, and the level pavement *appears* to incline from left to right proportionately. This habit is in time corrected by experience, under the new and true conditions.

This explanation seems to me to be the true one, but it is possible, though not perfectly clear to me, that the power of accommodation may contribute to this effect, because of our unconscious striving for definition of images.

The influence of the extrinsic muscles must be slight.

I beg to offer a recent case in illustration. March 27, 1888, Senator ————, æt. 60. For the past ten days he has had an inflammation of his lids. He gives no history of a former attack, but an examination discloses a blepharitis marginalis, and numerous inflamed and hypertrophied papillæ on the conjuntival surface of both upper and lower lids. Two of the hypertrophied papillæ (one on the right upper and the other on the right lower lid) suppurated and were opened on the conjunctival surface.

With each eye, $V.\frac{20}{L}$.

Under full mydriasis,

$$V.\ R.\frac{20}{L}: \text{with} - 1.\ D\ s.\ V.\ R.\frac{20}{xx}.$$

$$V.\ L.\frac{20}{C}: \text{with} - 2.\ D\ cy.\ @90°, V.\ L.\frac{20}{xx}.$$

After recovery from the effect of the mydriatic, with the use of the correcting glasses, vertical parallel lines appeared to converge from above downward. After a few weeks' use of the lenses, the distortion had grown markedly less, and, as usual, has probably disappeared. As he would not wear lenses on the street, I heard no complaint of the surface of the pavement; but, from numerous other experiences, I have no doubt it would have given the accustomed impression.

It is my practice, after assuring myself of the correctness of the lenses, to insist upon their constant use for a time, with the certainty that the ocular, or mental, readjustment, whichever it is, will take place.

Until some other, and more conclusive, evidence is offered, adverse to the theory of a mental process, this is to be preferred to one based upon the supposed inco-ordination of the extrinsic muscles, because any change of habit in muscular action is a result only of a very long process of training. On the contrary, the brain is capable of, and accustomed to, allowing for sudden changes in position of the body, and promptly adapts itself to its surroundings, in order to maintain control.

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EDITORIALS.

KOLPO-URETERO-CYSTOTOMY, IRRIGATION AND DRAINAGE IN CHRONIC PYELITIS.

At the meeting of the Ninth International Medical Congress Dr. Nathan Bozeman, of New York, read a paper entitled "The Gradual Preparatory Treatment of the Complications of Urinary and Fæcal Fistulæ in Women, including a Special Consideration of the Treatment of Pyelitis by a new Method, and the Prevention of the Evils of Incontinence of Urine by a new System of Drainage." In this paper he reported the history of a case of pyelitis that occurred as a complication of a large urinary fistula involving the urethra, uterus, and both ureters, and spoke of its successful treatment by irrigation of the pelvis of the kidney. He briefly mentioned also the extension of the method to the treatment of a case of pyelitis not associated with a fistulous opening in the bladder, the orifice of the ureter having been exposed by an operation that he named kolpo-uretero-cystotomy. Dr. Bozeman now reports his second case in full, the treatment of it having been completed, in the *American Journal of the Medical Sciences* for March and April, adding also an analysis of the first case.

In the paper read at the meeting of the Congress he showed that in the treatment of cases of urinary fistula by the use of intra-vaginal drainage, by means of an instrument that he devised, he was able to conduct away the urine from the bladder, and to prevent its contact with the vaginal mucous membrane and the integument of the external genitals and surrounding parts. The essential part of the instrument is a hard-rubber or metal drain that fits in the vagina and is connected by a soft-rubber bag or urinal attached to the thigh near the knee. Its upper surface, corresponding with the vesico-vaginal septum, is grooved or made concave and perforated by a number of small openings in such a manner that one of them must come in apposition with the fistula. The vaginal mucous membrane clings closely to the instrument and blocks up all the openings on its upper surface except those opposite the fistula. The margins of the fistula are accurately applied to the instrument, and the defect in the septum is supplied by its upper surface. In this way the urine is drained directly from the bladder, and does not come in contact with the vaginal mucous membrane. The term intra-vaginal drainage, therefore, merely suggests the use of an instrument placed within the vagina in order to conduct away the urine from the bladder

The operation on the second case was as follows: The patient was anæsthetized, placed on the left side, and the anterior wall of the vagina exposed and made tense by means of Bozeman's dilating speculum and perineal elevator. The point of a narrow-bladed scalpel, mounted on a long handle, was made to enter the mucous membrane on the right side, about one inch and a quarter below the cervix uteri, and three-quarters of an inch away from the median line, and a circular piece of the septum was removed, forming an opening into the bladder large enough to admit the index finger. The orifice of the ureter was then discovered, and bloody urine was issuing from it. The vesical and vaginal mucous membranes were brought together at the border of the opening with a continuous catgut suture. A No. 8 French olive-tip catheter was then passed into the ureter and entered the pelvis of the kidney without meeting any obstruction. Warm water was now injected through the catheter by means of a small piston syringe. About a drachm at a time was forced into the pelvis of the kidney and then allowed to escape. This irrigation was continued till the fluid that came away was free from blood. The catheter was then held in place for thirty-six hours, and the urine was collected as it flowed directly from the pelvis of the kidney. Examination showed it to be alkaline, and to contain a large proportion of blood, pus, and crystals of

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triple phosphates, with great numbers of bacteria. A week later the catheter was again introduced and allowed to remain its for twenty-four hours. In both instances continued presence caused nausea and vomiting, and a good deal of paroxysmal pain.

On the day following the operation a drainage instrument was introduced into the vagina, and the uretero-vesico-urethral drainage support was used as long as the patient was confined to the bed. Afterward the utero-vesical form was used, since it does not interfere with the sitting posture. The drainage was satisfactory from the first, and the instrument in the vagina caused no inconvenience. It was found that the menstrual blood was drained directly from the uterus, and the fundus, which was retroverted and prolapsed, was restored to its normal position by the pressure of the rounded upper extremity of the drainage support.

The vesical and vaginal mucous membranes having united at the border of the opening by first intention, ten days after the operation systematic treatment of the pyelitis was begun. Every day a flexible olive-tip catheter was passed into the ureter, and the pelvis of the kidney was irrigated with a warm solution of bichloride of mercury, 1: 20,000. A rubber tube was attached to the lower extremity of the catheter, in order to lengthen the instrument, and to connect it to the nozzle of the syringe more readily. A small hard-rubber syringe was used. At first only about one drachm was injected at a time; afterwards it was found that the best guide to the quantity of fluid to be injected was the sensations of the patient. Whenever the pelvis of the kidney was distended a peculiar and characteristic pain was felt; the fluid was then allowed to escape, and the injection repeated until the washings were colorless and free from sediment. As the treatment progressed the size of the catheter used was gradually increased to a No. 13, and it is probable that the ureter could have been still further dilated.

Since the ureter has a spiral course the catheter rotated on a longitudinal axis as it entered, and a given point on its surface, indicated by a mark, was seen to describe a complete circle. As the catheter passed toward the pelvis of the kidney this point moved from right to left; and when the instrument was withdrawn the rotation was in the opposite direction. In the left ureter the direction of rotation is reversed. When the catheter was passed the urine in the pelvis of the kidney flowed out, and the quantity thus removed was found to be variable; if the patient had been standing or walking immediately before the introduction of the catheter in the left lateral prone position, there was little or no accumulation of urine in the renal pelvis; if she had been lying down a considerable quantity was removed, and at the beginning of treatment this was sometimes as much as fifteen drachms. The capacity of the pelvis was found to be 21 drachms at first, but was at last diminished to 5 drachms, which is probably about normal.

During the course of the treatment a flexible renal sound was constructed, made of a delicate ribbon of steel twisted into a cylindrical form of a suitable size and length. With this the ureter and pelvis of the kidney could be explored more easily than with the catheter, and it would more easily detect the presence of a renal calculus than the catheter.

At the end of three weeks the urine was clear and deposited no sediment. About six weeks after irrigation of the pelvis of the kidney was begun the following experiment was made: The bladder was douched. The catheter was then passed into the right ureter, and a drainage instrument was placed in the vagina. The urine from the left kidney, as it was secreted, flowed into the bladder and was collected by a drain; that from the catheter was received in a vessel placed between the thighs. In this way it was possible to collect at the same time and in separate vessels the urine secreted by each kidney. At the end of two

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hours three ounces of urine had been collected from the left kidney, and four ounces by catheter from the right. The result of the examination of the two specimens showed that the pelvis of the right kidney had returned to a normal condition. The urine from the left kidney was straw colored, neutral, sp. gr. 1010, no albumen, no sediment; that from the right kidney was amber colored, acid, sp. gr. 1020, with an occasional leucocyte.

As the urine returned to a normal condition the symptoms improved, the pain in the right lumbar region ceased entirely, and the patient gained appetite, flesh, and strength. Haste in closing the opening in the bladder was considered unnecessary, because by the use of the utero-vesical drainage support all discomfort from incontinence of urine was prevented. The patient was therefore sent home, and told to return for the operation when her health and strength were entirely restored. Some weeks after her return home she wrote: "The drainage works perfectly; there is no escape of urine except sometimes a little while lying down. I have not suffered any pain in the kidney. The instrument keeps the uterus in position. I have gained 19 pounds in three months—that is, since the operation. I can either ride or walk; neither gives me any uneasiness." Three months after this she returned for the closure of the artificial fistula, having gained 25 pounds in weight, and become strong and well. The vagina and vulva were in a healthy condition, and almost all the urine had been drained from the bladder and the normal position of the uterus maintained by the drainage support.

On the day of her return a No. 13 (French) catheter was passed into the pelvis of the kidney and allowed to remain four hours. The urine drawn off was entirely free from pus, but as the ureter had contracted during the absence of the patient the large size of the catheter set up a mild attack of cystitis, ureteritis, and pyelitis, and the operation for the closure of the fistula was delayed for four weeks, until observation of the patient gave assurance of the subsidence of inflammation.

The fistula was closed with the button-interrupted suture. The line of co-aptation measured about one and a half inch, and four silver sutures were used. The second and third wires were passed half an inch apart, so as to avoid all danger of obstructing the orifice of the ureter. The sutures were left long, and their ends were inclosed in a rubber tube. A No. 4 soft English catheter was placed in the bladder and secured in place by tying it to wires opposite the meatus urinarius. This operation was followed during the first two or three days by a good deal of vesical tenesmus. The catheter was removed at the end of 12 hours. The urine was drawn and the bladder irrigated every six hours with a weak solution of boracic acid. Perfect union occurred, and the sutures were removed at the end of seven days; the patient was allowed to get out of bed a week later.

Examination during the week following the operation showed that the fundus of the uterus had returned to its original position against the rectum, and the cervix became displaced toward the right, causing some distortion of the vesico-vaginal septum, and possibly some obstruction of the ureter. To correct the displacement and guard against cystitis and pyelitis the vagina was columned with dry cotton. After a few applications of the column the utero-vaginal support was introduced, but it occurred to Dr. Bozeman that the use of the drainage support, which had held the uterus in position while the fistula remained open, might be continued. It was found that the instrument was as efficient a uterine support as ever. It held the uterus in position perfectly. It was found that when the openings in its cribriform surface were closed the instrument tended to slip down, and was no longer useful for this purpose.

Five weeks after the closure of the fis-

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tula the patient looked and felt perfectly well; the vesical and renal systems had all disappeared, and the urine was normal. She was continued under observation in order to determine whether the correction of the uterine displacement would be permanent.

Dr. Bozeman submits the following summary of what he conceives to be the most important results that follow the employment of this new method in the treatment of pyelitis:

1. An artificial fistula at one of the ureteral angles of the trigone of the bladder, the result of the operation of kolpo-uretero-cystotomy, furnishes an opportunity for the observance and clinical study of diseases of the bladder, ureters, pelves, and kidneys, afforded by no other means. In consequence of the spiral course of the ureter only a very flexible instrument can be safely passed into the pelvis of the kidney; and in order to discover the ureteral orifice by probing the bladder a moderately stiff instrument must be used. When an opening in the bladder has been made, the orifice of the ureter can be exposed to view, and the most flexible instrument guided into it.

2. The means of easy access to the bladder, ureter, and pelvis of the kidney, afforded by the operation of kolpo-uretero-cystotomy, are even more important for treatment than for diagnosis. Irrigation of the pelvis of the kidney removes pus and ammoniacal urine from contact with its mucuous membrane. Gradual dilatation of the ureter overcomes narrowing of the duct at its orifice or along its course; the escape of irritant substance from the pelvis is thus made more easy, and the descent of a calculus impacted in the ureter would be facilitated. Physiological rest and perfect drainage of the bladder, ureters, and pelvis tend to cause the subsidence of inflammation of their lining membrane, and atrophy of their thickened muscular coats. In consequence of the removal of the pressure of the urine, an enlarged bladder or a dilatated pelvis returns to its normal size.

3. By this new method of treatment the patient is exposed to but little danger in comparison to that involved in the grave operations of neprotomy and nephrectomy. These major operations are seldom done except at a late period, when extensive renal disease has occurred, and, if the case does not terminate fatally, result in partial or complete loss of one or two vital organs. The complicating cystitis is not treated by them, and causes that may afterward lead to disease of the remaining kidney are neglected. Congenital absence of one kidney, coincident disease of both, and pyelitis on both sides, are contra-indications to the performance of the operation of nephrectomy, but not to the employment of this new method of treatment. Kolpo-uretero-cystotomy should be done early. By the operation, and the subsequent treatment, the associated lesions of the bladder will be cured, and in many cases all the urinary organs restored to a normal condition. In other cases, by the accurate means of diagnosis afforded by the opening into the bladder, allowing the use of catheter and renal sound, a stone in the pelvis of the kidney itself, or some other condition not susceptible of cure by this method of treatment, may be discovered. Nephrotomy or nephrectomy may then be resorted to with greater confidence, and an increased probability of success. The patient is relieved meanwhile from the distress resulting from the complicating cystitis and pyelitis. The vesicle and pelvic irritability and tenesmus no longer causing loss of sleep, her general condition can be improved, and she is better prepared to undergo a serious operation.

4. Intravaginal drainage prevents the evil consequences of incontinence of urine, and perfects the method by removing the chief objections to its employment.

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THE LATE EMPEROR OF GERMANY.

The question as to the nature of the disease which has caused the death of the late emperor of Germany is, if we may judge by the brief notes received by the secular press by cable, answered by the autopsy.

This statement of the post-mortem examination substantiates the opinion which has been held by the greater portion of those members of the profession best qualified to judge of the case. The course, and in general the history, of the case does not materially differ from that of most cases of cancer of the larynx. The interest of this particular case consists in the fact that the patient was the heir to the throne of one of the greatest empires of Europe.

There will always in this instance, as there must in all other similar cases, remain a doubt as to one point, namely, the bearing of the treatment upon the duration of life. The early recognition of the nature of the disease could in no way solve that question. In too many cases an operation has been followed by a speedy dissolution. The average duration of life in general has been quite as long, or perhaps we may say longer without any operation except that of tracheotomy, as when there has been made an effort to extirpate the larynx, or even a portion of it. On the other hand the effort to remove the larynx, or the diseased portion of it, has evidently in many instances shortened life. Whether in this case such would have been the result, it is, of course, impossible to know. All things considered it is quite certain that the management by Mackenzie and his aids materially prolonged the life of the illustrious sufferer and secured for him the maximum of comfort and ability to continue to the very last in the discharge of the functions of his high estate.

The position of the German profession toward the eminent English surgeon is a little uncertain. The secular press has represented this attitude as one of hostility, of bitter criticism. The German journals which we have been able to consult hardly justify such a statement. The most eminent of the profession in Germany have not been quite certain as to the nature of the trouble. The examination of the portions removed by Mackenzie by the master of pathology not only among the Germans themselves, but one recognized by the whole learned world as competent, if any one can be, to decide the case, left it in doubt whether the growth was a cancer or a non-malignant tumor. Of course, the failure to find evidence of malignancy did not in the mind of any one exclude the possibility of malignancy, but this fact raised the hope that the condition might not be cancer, and justified treatment directed to the amelioration of the symptoms and calculated to prolong life.

The charge has been made that Mackenzie recognized at once the character of the disease, but gave a false diagnosis and prognosis for political reasons and under the influence of the princess, the wife of the patient. No one who has had the privilege of knowing the celebrated specialist who has been placed in this trying position will for a moment believe that he in any way departed from the line of moral or professional obligation, even to serve a throne. The charge that he had misstated the facts does not seem to be borne out even by the admitted history of the case. He simply recognized the truth that there was a doubt as to the nature of the malady, and hoped that the case was not malignant. Had the operation been performed, as contemplated by the German attendants when Mackenzie was called, no one, of course, can say that the emperor would not now be living, but it is much more probable that he would have been dead months before, and that he would never have come to the throne.

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SOCIETY REPORTS.

CHICAGO PATHOLOGICAL SOCIETY.

JUNE MEETING.

President I. N. Danforth, in the chair.

Dr. Albert B. Strong read a paper on "CALCULI IN THE BLADDER OR URETHRA OF CHILDREN."

It is said that in those regions of Germany where sour wine is freely consumed the drinkers mix the beverage with an alkali to guard against kidney colic. Dr. E. Powell reports the case of a physician who invariably suffers from renal colic within the next twenty-four hours after drinking a glass of sour wine. One or two days afterward he always passes from the urethra a uric acid calculus as long as a grain of wheat.

The author has during the past fifteen years seen seventeen cases of calculi in children varying in age from one to eight years. Of these cases three were operated upon by the left lateral perineal section and the stone removed. In ten cases the stone was passed spontaneously, or with assistance, through the urethra. In four cases an operation was refused, and the patients died from uræmia.

Of these cases two were children of German and fifteen of Polish parents. This large proportion of stone cases occurring among children of one nationality excited very great interest, and the reason was accordingly eagerly sought for. The large Polish population of the northwestern portion of this city furnished the cases. In the course of the investigations many other cases of calculi in the bladder or urethra were heard of, but not personally seen. These people are prolific, and it is not at all uncommon to see a family of eight or ten children. As a rule the patients are very poor and their sanitary surroundings most unfavorable.

Among these people, as a rule, the mother nurses the baby until it is ten or twelve months of age, when pregnancy interrupts lactation, and the child subsequently subsists largely upon sausage, put up in small gut-cases. This article is cheap, easily prepared, and very nutritious, and the little one sucks and munches his food several times a day. Carpenter says: "On a full meat diet the normal daily excretion of ten grains of uric acid is increased to 32.5 grains." Uric acid forms the nucleus of fully 95 per centum of all urinary calculi. Therefore in these cases reported it seems reasonable to infer that meat diet is the most potent etiological factor. In these cases no examination was made for the nucleus of the stones which were exhibited. The smallest weighed two grains, and was from a child twenty-two months of age. The next in size weighed eight grains, and was from a child twenty-seven months old. The largest weighed three and one half drachms, and was removed from a boy eight years of age.

Two points in the history of the latter case are interesting:

(1) The renal origin of the stone, and

(2) The years of dribbling of urine which followed the operation.

The mother gives the following history:

"The child was perfectly well up to three years of age, when he had a mild attack of measles. On the third day of the eruption the boy suddenly sprang out of bed, complaining of great pain in the lower part of the abdomen. He screamed and ran about the room, and continually crying out, 'Oh, my belly!' This severe attack lasted an hour, and milder attacks were of frequent occurrence for the next four days, during which time he frequently pulled at his penis. His urine came in drops, and he appeared to suffer much pain in voiding it. On the fourth day the pain and habit of pulling at the penis suddenly disappeared, and he remained in perfect health for the subsequent six months, when he was seized with a second attack, similar to the first, which also lasted three or four days. Again the trouble disappeared as suddenly as it had appeared. He was then perfectly well for four months, when a third attack seized

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him. During the last three years these attacks have been of frequent occurrence, while the habit of pulling at the penis continued more or less constantly; for half an hour after urinating the child would scream with pain. Ten days before the operation here reported he was seized with excruciating pain which has been paroxysmal ever since. During the paroxysm the child was perfectly uncontrollable, throwing his body about in violent contortions. This condition terminated in a spasm on the tenth day. During the ten days the patient complained of pain shooting from the right lumbar region downward toward the bladder. He also suffered great pain at the head of the penis."

There are a few points which admit of special mention in this case. The repeated attacks of renal colic demonstrate the origin of the stone. There was no history of excessive meat diet. Again, the patient had been seen within the last day or two prior to this report, and the author learned that for the first five years succeeding the operation there was constant dribbling of urine during the daytime. Yet during the next three years the condition was present only when the boy caught cold. Since then he has been perfectly well in this respect. He is now a large, well-developed boy, following the laborious work of a molder.

This dribbling of urine after perineal lithotomy is not alone confined to this case. Other operators say that it is not at all uncommon. The text-books consulted are, however, silent on this point. In giving a prognosis in these cases, this possible condition should not be forgotten.

Concerning perineal section in children, there are a few peculiarities dependent upon the different anatomical relations and nature of the infantile bladder. Such a bladder, aside from its small size, is differently situated in the pelvis. It is much higher, so that the distance from the skin to the base of the organ is relatively greater than in the adult. As a result of this anatomical peculiarity, in opening the bladder the handle of the knife must be depressed more than in the adult, otherwise there is danger of cutting into the space between this viscus and the rectum.

Again, the bulb of the urethra and the prostate gland are so rudimentary that neither practically exists, hence there is little danger of wounding the bulb or its artery. Again, the recto-vesicle fold of peritoneum is much higher than in the adult, and consequently there is but little danger of opening the peritoneal cavity should the incision be extended back unduly far.

The advice given in the recent edition of the Encyclopedia of Surgery, to cut freely through the prostate and base of the bladder should be condemned.

Dr. Venn extracts urethral calculi when they are lodged in the canal anterior to the perineum by an ingenious method. He distends the canal in front of the obstruction with oil, and then the stone is easily manipulated forward, and, if necessary, removed with the forceps.

Dr. Strong had recently removed a stone from a boy seventeen years of age, which weighed one ounce and a half.

Dr. Skeer reported a case of stone which had lodged in the prostate gland. It gave him a great deal of trouble, and was three-quarters of an inch long and half an inch in diameter. He also mentioned the case of a lady who passed a stone from the urethra as large as the seed of a prune.

Professor E. Root asked whether the patients were troubled with nocturnal incontinence, to which Dr. Strong replied that all of them were. Incontinence was an early symptom in most of the cases, and the next most prominent one was pulling at the penis.

Dr. Strong had never met with calculi in girls, but had read of such cases.

Professor Silva knew of a lady, married, 30 to 35 years of age, who had spontaneously passed a calculus, after intense suffering, as large as the largest exhibited by Dr. Strong. It was pear-shaped. A peculiarity

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in connection with the case was that at the time she was considered to be in labor.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF CHICAGO.

REGULAR MEETING, FRIDAY, APRIL 20, 1888.

The President, Henry T. Byford, M.D., in the chair.

THE PRESIDENT EXHIBITED A UTERUS REMOVED PER VAGINAM FOR FIBROIDS.

He said: I have here a uterus about double the normal size that I removed through the vagina on account of fibroid tumors. They had produced incurable stenosis, and were accompanied by almost constant pain of increasing severity. The patient, Florence Jones, is 42 years old, and has had four children, the youngest 20 years old. She is obliged to wash for a living, has been getting worse for two years, and during the past year has had to stop work every two or three days on account of suffering referred to the pelvis. She has been under treatment by prominent gynæcologists, both for the stenosis and for the fibroid tumors, without avail.

As nothing short of a severe cutting operation would have relieved the stenosis, I considered that vaginal hysterectomy would be but little less dangerous, and would give permanent and complete relief instead of temporary and partial. It would remove the tumors with but little danger and thus forestall a possible abdominal hysterectomy or supra-vaginal amputation with the terrors so often connected with them. You will notice that the whole uterus is enlarged and hardened, and that the cervix would form a bad stump in case of such amputation. Two of the tumors are near the serous surface, and one just under the mucous membrane. The stenosis extends half an inch above and a little below the internal os and is of cicatricial hardness. The tumors are each about the size of a hickory-nut.

As would be expected, the patient has not had a bad symptom, and will in two or three weeks be able to resume her place at the washtub.

The President said, in reply to questions, that the operation was performed five weeks ago, and the patient was ready to leave the hospital. The ovaries were not removed, as they were not diseased and were undergoing senile atrophy.

Professor James H. Etheridge reported the following CASE OF CÆSAREAN SECTION.

He said: I have not had time to commit to paper a description of this case, but I can give the salient points.

On the 21st of February, I was summoned to see a patient; I was notified that I was wanted to perform Cæsarean section; that there was a fluctuating tumor in the pelvis. I saw the patient about half-past ten in the morning, and upon examination I found the whole pelvis blocked up by a fluctuating tumor containing a hard substance. I could feel nothing else. The index finger could pass up between the symphysis pubis and the tumor, which seemed to be in the posterior part of the pelvis. I could pass one finger easily, but I could not get two in, and with the utmost pressure of my hand upwards I could not reach the cervix.

The patient was an Irishwoman, 32 years of age, of nervous temperament, and had borne three children. The first labor was normal. The second labor was terminated by instrumental delivery with some difficulty, and the third one, two and a half years ago, was accomplished with the greatest difficulty, with forceps. There was an obstruction to delivery found at that time, but what it was was not determined. The next thing known of her was she fell in labor, and the attending physician upon examination detected what he communicated to me. I could not determine what the fluctuating tumor was, and the idea of puncturing it occurred to me upon my first examination, but fearing that I would open a pus cavity that would discharge its contents during the lying-in

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period, I was deterred from doing it. After a hurried consultation it was decided that the patient should be taken to the Presbyterian Hospital. She reached the hospital at a quarter-past one. The attending physician went with her in a carriage and administered chloroform *in transitu*. About half-past four she was etherized and the initial incision made from above the umbilicus, perhaps an inch and a half, down to the probable location of the reflexion of the peritoneum upon the uterus. The abdomen was very large, and in making the first incision the edge of the scalpel went through the abdomninal wall and into the uterus itself. I supposed I was making a cutaneous incision, but the wall was so thin that the knife went through into the uterus. The steps of the operation after that were very simple. The incision was enlarged to about six inches, perhaps seven. The amniotic sac was not broken, and two or three sweeps of the knife carried it through the uterine wall and into the bag of waters, and there was a tremendous welling up, the water flowing out over the patient, the table, and everything else. Dr. Parkes was my vis-á-vis, and he immediately pressed the uterus laterally with the view of forcing the child up through the opening, and it came up breach first. There was no attempt of the uterus to contract. The child was easily taken out in a second of time, and two snap forceps put upon the cord, which was divided and the child given to the nurse. There was very copious hæmorrhage, though not alarming; the walls on both sides seemed to be springs of blood. The contraction of the uterus was secured by the pressure over each side, no attempt being made to turn the uterus out of the cavity. The placenta was easily secured; the peeling off of the whole of it from the inside of the uterus was speedily and easily and cleanly accomplished. Uterine contractions failed to follow immediately. A hypodermic injection of ergot was given and snap forceps put on bleeding vessels until the hæmorrhage was controlled. The uterus was manipulated and pinched and every effort made to invite nature to set up contraction, which, after a space of seven or eight minutes, came on feebly, not vigorously.

After the uterus was thoroughly emptied, I passed my hand down into the cervix to ascertain if it was patulous, and I found all four of my fingers could go through easily up to the second joint, showing that there would be an outlet for the lochial flow. The appearance of blood at the vulva indicated that drainage from the uterus would be all that could be desired.

The closure of the uterus was accomplished by three rows of sutures; the first one, which brought together the mucous membrane, was made with a carbolized sllk ligature. A larger ligature was used for the muscularis. A fine silk suture was used for the peritoneal covering of the uterus. In the mean time the uterus was contracting very steadily indeed, and the hæmorrhage was well under control, so that by the time the muscular wall was brought together it was a dry wound. The abdominal wall was closed in the ordinary way with interrupted sutures and the patient was put to bed with stimulants and hot applications, and she reacted very well. She did well for twenty-four hours without any particular rise of temperature, but in the second twenty-four hours there was a gradual coming up of the temperature and peritonitis set in. I wished to take advantage of cathartics and get her bowels open, but every effort that was made to physic her, in the second twenty-four hours, was entirely futile. Injections by the rectum were attempted, but the pressure upon the rectum prevented the introduction beyond the sphincter ani of a rectal tube; in the mean time the temperature was going up and the patient getting weaker. Then it was decided to open the fluctuating tumor in the pelvis and see what it was. The patient was chloroformed and placed in the extreme lithotomy position. The posterior vaginal wall was found to be extremely blue. The

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Cæsarean section was performed about four o'clock in the afternoon, and this operation was done near the close of the third twenty-four hours afterwards, viz., about two o'clock. An incision was made in this bulging mass and the pus welled out in great quantities, amounting to about half a gallon. Upon introducing the index finger into the abscess cavity, a dermoid cyst was detected, the hair being easily detectable. The patient was put to bed after thorough evacuation of the pus, but she never rallied from the shock of the operation and died in twelve hours.

It occurred to me, on first examining her, that this could not be an accumulation of ascitic fluid, and that it must be pus. From the history of the case and the deduction that was speedily made, the decision was reached that abdominal section should be made and the child removed in that way, because in the examination one could feel up in the vagina, with the finger, a hard mass of something below the promontory of the sacrum that appeared to me would render it impossible to introduce forceps and to drag the child through; and if it was filled with pus, I was certain the woman would die of infection.

Professor W. W. Jaggard read the following paper, entitled "A Case of Conservative Cæsarean Section Under the Relative Indication, with Termination in Recovery."

I desire to place on record the following case of conservative Cæsarean section performed under the relative indication, with termination in recovery. In passing, I beg to call attention to certain points of practical interest in connection with the measurement of the pelvis, the indication for, and the technique of, the operation.

Dr. Patrick Dougherty, of Chicago, a short time since invited me to see in consultation a case of alleged contracted pelvis. We examined the patient in the third week of February last, and elicited the following history.

Case.—Mrs. E. S., 36 years old, born in Hillesheim, in the region of the Eyfel Gebirge, Rhenish Prussia, married in the United States shortly after immigration. She had been a sickly child, unable to walk until her seventh year, on account of *Doppelglieder*, *i. e.*, rachitis. During infancy, she suffered from tuberculosis of the cervical glands, two depressed cicatrices being visible on the left side of the neck at the time of examination. Since her seventh year, she has enjoyed robust health.

Her mother gave birth to four children, three of whom were females. All of these labors were normal. Of the patient's two sisters, one has had normal confinements, while the other has been invariably delivered by the aid of instruments.

First pregnancy: patient's first child was delivered May 13, 1882. Shoulder presentation, right scapula anterior position. Difficult delivery by version, decapitation, and extraction. Puerperium normal.

Second pregnancy, delivery June 20, 1883. Same presentation and position as in first pregnancy. Prolapsus of funis. Delivery by version, extraction, and forceps to the after-coming head. Septicæmia, puerperium six weeks.

Third pregnancy, induction of premature labor at the end of the seventh lunar month. Same presentation and position as before. Delivery by version and extraction. Child survived the difficult operation a few hours. Puerperium normal.

Fifth pregnancy, beginning of last menstruation June 1, 1887. *Status præsens:* The patient, of strong frame and well developed muscles, is four feet seven inches in height, and one hundred and thirty-five pounds in weight. Pregnant; near term; distance from ensiform cartilage to pubis, forty-five centimetres (17¾ inches); from ensiform cartilage to umbilicus, twenty-two centimetres (8¾ inches); circumference around umbilicus, eighty-seven centimetres (34 inches). Shoulder presentation, right scapula anterior position.

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Pelvic Measurements.

Distance between anterior-superior spinous processes	27 cm.	(10½ in.)
Distance between iliac crests	27 cm.	(10½ in.)
External conjugate diameter (Baudelocque)	14 cm.	(5½ in.)
Distance from sacro-coccygeal joint to subpubic ligament (A. G. E. Breisky)	9 cm.	(3½ in.)
Distance between the great trochanters	30 cm.	(11.7 in.)
Pelvic circumference (Kiwisch)	85 cm.	(33¼ in.)
Diagonal conjugate diameter	7.5 cm.	(2.9 in.)
True conjugate diameter (estimated)	5.5 cm	(2.14 in.)

Diagnosis.—Simple, flat rachitic pelvis, with so-called absolute contraction of the true conjugate diameter. Apart from the pelvis, the osseous system showed no marked signs of rachitis. There was no abnormal spinal curvature, antero-posterior or lateral, and the long bones were perfectly straight.

Indication for Operation.—Notwithstanding the fact that the pelvis was a typical example of the so-called absolutely contracted simple, flat, rachitic class, the history of former deliveries demonstrated plainly that the obstacle to the escape of the child through the natural passages was only relative, and not at all insurmountable. Nor is it necessary, in order to explain the woman's survival of former labors, to invoke extraordinary skill upon the side of the medical attendants—in all twelve in number—nor unusual physical endurance upon the part of the patient, although both conditions were doubtless supplied. Both parents were undersized, with relatively small heads, and the children were of a size less than is common. Moreover, the after-coming head was invariably made to present, and the accommodation of the passenger to the passages was thus greatly facilitated. The case was clearly one in which the woman could be delivered with safety, in all probability, by version, extraction, and craniotomy. On the other hand, the child was living, and Cæsarean section offered the possibility of saving both mother and child, although, of course with enormously increased maternal risk. The question of the induction of premature labor, so late in pregnancy, was not considered for obvious reasons. In a word, the relative indication for Cæsarean section was presented.

The most important condition upon which this indication depends at the present time is the consent of the woman, obtained without direct or indirect coercion. Accordingly, a plain, unvarnished statement of all the facts in the case was made to the patient. She was clearly and distinctly informed that, by the destruction of the child and its removal as in former pregnancies, her life would be almost certainly saved, and that the attempt to save both lives by Cæsarean section would be attended by enormously increased danger to herself. After a week's deliberation, she elected the Cæsarean operation. In reaching this conclusion, she was assisted by the Roman Catholic priest of the parish. This gentleman remarked that the pregnant woman was the aggressor; that she had made the contract of maternity; the child was passive and had made no contract. In strict equity, entirely apart from ecclesiastical considerations, the child's claims to life should be considered at least equally with those of the mother.

Operation.—The patient at once entered Mercy Hospital. The urine was examined and found to be normal. The only preparatory treatment consisted in a daily bath, in tepid water, with the liberal use of soap, which the woman's mode of life before admission rendered necessary.

In the selection of the time for operation, I had determined to choose the latest possible moment before labor actually be-

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gan. From the usual data—date of last menstruation, size and position of the uterus, abdominal measurements, length of the child measured by calipers (Ahlfeld), estimate of the size and weight of the child by palpation (Carl Braun)—it was possible in this case to make only a probable diagnosis of the time of gestation. I concluded that the woman was in the last fortnight of pregnancy.

Early Tuesday morning, March 6, the patient informed me that she would certainly fall in labor within the next twenty-four hours. She based her prediction upon dull pain referable to the lumbar and sacral regions, and beginning painful uterine contractions. She had been enabled to foretell her other confinements by similar sensations, and I was inclined to attach considerable importance in this case to subjective signs. The only objective symptom indicative of impending labor was a slight increase in the force and frequency of the intermittent uterine contractions. So the hour for the operation was fixed upon at one in the afternoon.

All precautions were taken with respect to the most thorough cleanliness and disinfection of the operator, assistants, patient, instruments, and environment.

Dr. W. E. Casselberry administered the anæsthetic (ether); Dr. E. C. Dudley, Dr. Bayard Holmes, Dr. G. W. Whitfield, Dr. B. L. Riese, Dr. M. Scheuer assisted me in the operation; Dr. Patrick Dougherty and Dr. Charles Caldwell assumed charge of the babe. I take this opportunity to make my grateful acknowledgments to these gentlemen for their efficient services.

The woman was in excellent condition; cheerful; pulse and temperature normal.

The steps in the operation were: After evacution of the bladder, incision through the linea alba, from the navel to a short distance above the pubes, as low down as was safe, on account of the bladder. The diastasis of the recti muscles was well marked, and the peritoneum was incised without dividing much muscular tissue. No omentum nor intestines presented between the uterus and anterior abdominal wall.

The median line of the uterus coincided with the incision, and the usual manipulation to correct lateral version and axial rotation was unnecessary. Before making the uterine incision, Dr. Holmes placed one hand on either side of the cut, and rendered the abdominal parietes tense enough to prevent the access of fluid to the peritoneal cavity. I incised the anterior uterine wall in the median line at a point a short distance above the os internum with a scalpel, and rapidly enlarged the cut in the direction of the fundus, to the extent of thirteen centimetres (5 inches) with a blunt-pointed bistoury. The thickness of the uterine wall was about one centimetre (one-third of an inch.)

The placenta was implanted over the line of incision, and the first gush of blood was frightful. The after-birth was quickly separated by the hand, the amnion ruptured, the child caught by the feet, turned, and delivered without laceration of the uterine wound. The child uttered a lusty cry upon its liberation from the cavum uteri. I had requested an assistant to insert his index fingers into the upper and lower angles of the uterine incision, and bring them up close to the abdominal cut as an additional precaution against the escape of fluid into the peritoneal cavity. In the hurry of the operation, this request was forgotten. After, or, rather, during the evacuation of the uterus, Dr. Holmes pressed this organ through the abdominal incision, by his hands applied on either side, while Dr. Riese brought the edges of the abdominal cut together behind the uterus, and effectually prevented all intestinal protrusion. The lower uterine segment, after this eventration, was firmly compressed by Dr. Holmes with the thumbs and index fingers of both hands, while the corpus uteri was enveloped in hot sterilized gauze compresses. Squibb's aqueous extract of

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ergot was exhibited hypodermically after the evacuation of the cavum uteri.

Hæmorrhage was trifling after the contraction and retraction of the uterine musculature, following the escape of the fœtus and envelopes, and was now fully controlled by digital compression. The elastic ligature was not used in the operation.

Twenty-one deep uterine sutures were inserted, including all the tissues down to the mucosa. For the introduction of these sutures, I used the long, slender laparotomy needle of Thomas Keith. This needle passes with remarkable ease through the thick uterine wall, making a very small puncture that is completely filled up with the suture material—in this case silk. After passing a finger through the canal of the cervix from above downward, the uterine cavity was irrigated with a five-per-cent. solution of carbolic acid, a bacillum containing ninety grains of iodoform placed within, and the wound closed. Union of the peritoneum over the line of incision was effected by a continuous silk suture. When the two rows of sutures had been drawn taut, the uterine wound was accurately closed, and perfectly dry. The uterus, in a state of normal retraction, was returned to the cavity of the abdomen.

The toilet of the peritoneum was brief, as no fluid had escaped into the abdominal cavity, and the intestines had not at any time protruded. The abdominal incision was closed with interrupted silk sutures.

The duration of the operation was about one and one-quarter hours. From the extraordinarily simple *technique*, it would seem that the operation had been needlessly prolonged. But the uterine sutures were inserted deliberately and with care; then, too, time was occupied in securing uterine retraction by the application of hot compresses.

The total amount of blood lost was not great—scarcely more than the average loss in normal labors. The chief element of danger lay in the suddenness of the loss, but no indication arose for the employment of transfusion, the apparatus for which was in readiness.

The shock from the operation was profound, but brief. The patient fully reacted within three hours. Her convalescence was uninterrupted. The pulse at seven, the day of the operation, was rapid, 120 beats to the minute, tense and small. It became gradually less frequent, less tense, until at the expiration of the first week it was normal. The temperature remained nearly normal, showing slight variations in the second week. These variations were attributed to several severe burns, suffered as the result of the injudicious application of hot bottles immediately after the operation. On the third day, the audible escape of flatus was noted, and about the same time the patient began to void urine spontaneously.

Tympanitis was notable by its absence throughout the recovery. On the fifth day the bowels were painlessly evacuated after the exhibition of citrate of magnesia, for which a preference was expressed.

The patient did not vomit at all, not even when she was recovering from anæsthesia.

The lochial discharge was slight, odorless, and ceased at the expiration of two weeks. Lactation was not established. After all former confinements the milk secretion was abundant.

Examination to-day, April 20, reveals the uterus nearly normal in size in mobile anteflexion. The parametrium is free from any sign of infiltration, and no trace of the sutures in the anterior wall of the uterus can be felt upon careful bimanual exploration. The vaginal finger easily outlines the anterior aspect of the uterus. The uterus is situated relatively high up in the pelvic cavity, but can be readily made to descend below the place of the inlet by gentle pressure above the pubes. I suspect the presence of adhesions—they must be very slight, however—between the fundus and the anterior abdominal wall.

The child was a small, but perfectly

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formed, and apparently mature male; weight, 3,000 grammes; length, 49 centimetres. The infant thrived on artificial feeding until the sixteenth day, when, after exposure to cold, it died suddenly in a convulsion. The autopsy disclosed intense pulmonary congestion. Although the child was apparently well nourished, it is not improbable that inanition was a predisposing factor. The death of the child was a matter of regret, apart from other considerations, on account of the possible unfavorable influence on the mother. However, she bore the loss calmly, feeling happy that she had given birth to a living child, capable of baptism.

The diameters of the fœtal head were:
Occipito-frontal ..... 11 cm. (4.29 inches).
Occipito-mental ..... 12 cm. (4.68 inches).
Bi-parietal ..... 8¾ cm. (3.4 inches).

Pelvimetry.—Dr. R. P. Harris, whose eminent services as the statistician of Cæsarean section are universally recognized, writes in a recent communication to the *Medical News*, March 31, 1888: "What is wanted now is a better acquaintance with pelvimetry, and the steps of the improved operation, as it is performed in Leipzig, Dresden, and New York." No one doubts the truth of this proposition. Certain it is that the notion of pelvimetry generally entertained is obscure and confused in the extreme. Dr. E. C. Dudley informs me that a few weeks ago he encountered a case in which a wife, desirous of becoming a mother, confessed to the practice of the prevention of conception through a period of ten years, under the advice of two distinguished practitioners, upon the ground of alleged contracted pelvis. Careful measurements revealed the fact that the pelvis was unusually large. The woman has since become pregnant. But it is needless to multiply examples of such irresponsible opinion, when we have fatal ignorance flippantly displayed in the literature of the subject. A very pernicious book by a very excellent man, and published only two years ago, contains the following sentence: "External pelvimetry, while of undoubted service in large averages, is of no use in an individual case. The most common application of it is to measure the conjugate diameter by means of Baudelocque's calipers or the like instrument. One point of the calipers is placed on the back over the sacrum, the other over the symphysis pubis, and the distance between is noted. We then guess how thick the sacrum and dorsal tissue are, and how thick the symphysis must be, and, deducting these measurements, we can guess how long the conjugate diameter is, which might have been done without so much trouble in measuring." Many of the cases of Cæsarean section recorded in American annals are rendered well-nigh valueless for the purposes of comparative study by the omission of accurate pelvic measurements. Now, it must be admitted that the exact determination of the size and form of the pelvis constitutes one of the most difficult problems in obstetrics. A survey of the enormous mass of literature upon this subject, accumulating since the discovery of the contracted pelvis by Julius Cæsar Arantius three hundred years ago, fully confirms this opinion. As an excellent critical, historical review of the subject, I beg to recommend to the Fellows of this Society the monograph* of Dr. Felix Skutsch. While all methods of pelvimetry fail to yield absolutely accurate measurements, and our notion of the pelvic anomaly in the concrete case must be inexact to a degree corresponding, still the diameters and dimensions just mentioned are amply sufficient to establish the probable diagnosis of the shape and relative size of the pelvis in the individual case of the more usual types of deformity, and to afford data for comparative study, and ground for action.

I append the corresponding normal diameters and dimensions, as given by Carl Braun and Schroeder:

* "Die Beckenmessung an der lebenden Frau." Jena, Gustav Fischer. 1887.

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Distance between anterior superior spinous processes.....26 cm.
Distance between iliac crests.....29 cm.
External conjugate diameter (Baudelocque)..... .....20¼ cm.
Distance from sacro-coccygeal joint to subpubic joint (A. G. E. Breisky) .....12.3 cm.
Distance between great trochanters 31½ cm.
Pelvic circumference (Kiwisch) ..90 cm.
Diagonal conjugate diameter. ...13 cm.
True conjugate diameter .....11 cm.

II. *The Relative Indication for Cæsarean Section.*—Of course, as an operator, I was more pleased to perform Cæsarean section than to do craniotomy. But the humor of the medical attendant sustains no relation to the ethics of the case. I cannot forbear to reiterate here certain convictions that must always come up for consideration in similar cases. These propositions I beg to submit, if the expression be not too harsh, not so much as matters of opinion as matters of fact.

1. The necessary maternal mortality of craniotomy, performed under the conditions demanded in Cæsarean section as respects freedom from exhaustion and infection of the patient, with the best instrument and adequate skill, in cases of the simple, flat, rachitic pelvis, with a *conjugata vera* of six to eight centimetres, is zero. The simple, flat, rachitic pelvis is used as a type in this thesis on account of its relatively frequent occurrence. In the generally contracted and flat pelvis a *conjugata vera* greater than six centimetres must be postulated unless, as in the case I have just reported, the fœtal head is uncommonly small. It has been reserved for Leopold to demonstrate the truth of this proposition. While in 215* cases of craniotomy collected from the records of the Berlin Polyclinic, the Clinic at Halle, and the Leipsic Polyclinic, the entire maternal death-rate was 5.6 per cent., the total maternal mortality in Leopold's Clinic at Dresden during the interval, 1883–1887, after craniotomy, including 71 cases,* was 2.8 per cent. In these two fatal cases the cause of death was eclampsia, so that the mortality due to the operation itself has been reduced to zero.

The operation, performed under its own peculiar conditions, with the best instruments, is not extraordinarily difficult. It does not imply a higher degree of operative skill than it is fair to presume every qualified practitioner possesses. I have observed in all about thirty cases of craniotomy, and have never noted especial difficulty in the technique of the operation, nor unfavorable results to the mother, when the procedure was really indicated, and when the necessary conditions were present.

On the other hand, the mortality of conservative Cæsarean section, even when the necessary conditions have been supplied, is still considerable. Of Leopold's twenty-three cases of the improved Cæsarean section, two, or 8.4 per cent., died. The following extract from a letter recently received from Dr. Robert P. Harris is of interest in connection with American statistics:

"Your case makes sixteen Sänger-Cæsarean sections for the United States, with seven recoveries; and 165 for the whole Cæsarean list, with sixty-three women saved.

"I have twelve cases on record for the the last fifteen months, with six women and nine children saved; yours makes the thirteenth. There were eight operations in 1887, all Sänger's but one, with four women and five children saved. I have three cases in already for this year: one each for January, February, and March; one woman and three children saved."

The Cæsarean section is, and must always remain, the most difficult, dangerous, and formidable procedure in operative obstetrics. The shock incident to the opera-

* Wyder, Archiv f. Gyn., Bd. xxxii., Hft. 1, p. 60.

* Leopold, "Der Kaiserschnitt," etc., Stuttgart. 1888.

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tion, entirely apart from sepsis and the loss of blood, is an element of danger that can never be completely eliminated. It is, perhaps, needless to remark that the successful performance of this operation does imply such a high degree of operative skill, and such an experience in this particular operation, as it is fair to presume the average practitioner does not possess.

As remarked by Leopold,* "The time has not yet arrived when craniotomy upon the living child can be unconditionally substituted by Cæsarean section. In a good many cases perforation may be avoided, and in a still larger proportion it cannot be dispensed with."

And Praeger † draws this important conclusion, "In cases presenting the relative indication, and which in a hospital might be subjected to Cæsarean section, the general practitioner, as a rule, ought only to consider craniotomy as the operation involving least risk to the mother."

2. The consent of the patient, obtained without direct or indirect coercion, is an essential condition to the relative indication. The time will probably come when under certain circumstances—*ex. gr.* in hospital practice—the woman shall not be permitted to elect as freely as she must be allowed to do at present.

3. The life of the adult female, who has already contracted relations with society, is of incomparably greater value, as judged by human standards, than the problematical existence of an unborn babe. Moreover, the expectancy of life in such children is decidedly less than in children of normal birth. If the operation is performed before the objective changes of labor are evident, as in the case under discussion, there is the risk of the premature interruption of pregnancy, of obviously serious prognostic moment with reference to the child. The necessary early ligature of the cord deprives the infant of an average amount of blood of ninety-two grammes (Budin, Ribemont). The mother is seldom able, even if she were to be permitted, to suckle her child. Finally, the offspring of women, affected with rachitis or osteomalacia, are frequently feeble, sickly, and unable to resist the unfavorable influence of the environment, entirely apart from the effect of hereditary disease. It is not my intention to use the death of the child in this particular case as an illustration of the truth of the statement just made, since in my judgment that event occurred chiefly as the result of most gross carelessness, *i. e.*, exposure of the child before an open window on one of those bitterly cold days in the latter part of March. Of the twenty-three children delivered alive by Leopold, one died a few hours after the operation (neglected shoulder presentation, laceration of the liver), eight died principally from cholera infantum within from three weeks to one year of the operation, eleven were living at the expiration of one year. The fate of three is unknown.

Now, while the present status of the Cæsarean operation with us scarcely justifies the words of Mauriceau, aptly quoted by Professor Lusk,* "If it be true that any women have escaped, it was the work of a miracle, or the express wish of God, who, if he wills it, is able to raise the dead, as he did Lazarus"; still it does suggest the often quoted remark of Cazeaux: "That which is certain respecting the Cæsarean operation is that more than the half of the women are immediately sacrificed, and that which has been well proven by the experience of the centuries is that, supposing all the infants alive at the moment of their birth, we will see not more than one-half attain the age at which their mothers succumbed."

I do not wish to be regarded as an obstructionist, but desire merely to utter a voice of warning. In this "Cæsarean Revolution in Progress in the United States," let us go

* l. c., p. 164.

† l. c., p. 110.

* "The Prognosis of Cæsarean Operation." The Medical News, October 8, 1888, p. 412.

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slowly. In the words of Professor Cameron, of Montreal, that I quote from a letter, and without his permission, "Too much has been claimed for the section; a reaction is bound to set in ere long." Draw the lines of indication and condition more exactly, and surrender the operation to a special class of practitioners.

III. *The Operation.*—The items of special interest in connection with this particular case of Cæsarean section, are:

1. In the selection of the time of operation, I acted upon Schroeder's advice, and chose the latest possible moment before labor actually began. The advantages of an aseptic genital canal, daylight, adequate assistance, and the like, outweigh the danger of atony after evacuation of the uterus. The researches of J. Braxton Hicks * on "The intermittent contractions of the uterus during the whole of pregnancy" are perfectly familiar to the English-reading profession. In a recent note, this observer writes, "These intermittent contractions, always going on, are ready to be intensified by any exciting cause, and especially so at the periods of the suspended menstruation." . . . "The rapidity with which labor can be induced at almost any time of pregnancy is explained now quite readily. Formerly the fact was not explained; indeed, the time for termination of delivery can be precisely stated—the whole process done to order, as Dr. Robert Barnes and myself have pointed out. Dilate the os by elastic bags, turn the fœtus by my method, and in two hours generally the fœtus is expelled. The whole need not occupy more than than from six to eight hours." I was present some years ago at a Cæsarean section performed shortly before term by Professor Spaeth, assisted by Dr. Lumbe and Dr. Ehrendorfer. In this case, as in my own, there was no difficulty in securing retraction after the evacuation of the viscus. Of course, one runs the risk of moment to the child—of interrupting pregnancy some time before term, since only an approximate estimate of the time of gestation can be made from the data we can at present command.

2. The uterus was incised *in situ* and the liquor amnii evacuated through the abdominal cut. Leopold recommends the eventration of the uterus before incision, and it is the common custom to rupture the amnion *per vaginam*. Sänger in his paper, read at the International Medical Congress, recommends the course pursued in this case. I had confidence in the ability of Dr. Holmes' hands to keep blood and liquor amnii out of the peritoneal cavity, and a short cut is of obvious advantage in retaining the intestinal mass within the abdominal cavity, not to mention other benefits.

3. Hæmorrhage was controlled by the normal tonus of the uterus and digital compression of the lower uterine segment. I did not apply the elastic ligature around the lower uterine segment before or after the uterine incision, on account of the danger of paralysis of the structures at and below the point of compression, a danger to which Sänger,* Doléris, and others have called attention. The amount of blood lost during the incision need not be much greater *without* than *with* the elastic ligature. It need not be much more than the amount of blood in the uterus at the time the incision is begun, provided subsequent procedures are executed quickly. The quantity of blood in the uterus at the time the incision is begun is necessarily lost.

4. The long laparotomy needle of Thomas Keith rendered the closure of the uterine wound easy and comparatively rapid. The puncture is very small, and is completely filled out by the suture material.

5. The suture material used in this case was silk. The influence of the suture material on the functions of the uterus, menstruation and pregnancy, is a question of grave practical moment. Leopold has

*The Lancet, p. 554, March 17, 1888.

*Transactions of Ninth International Medical Congress.

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rejected silver wire entirely and prefers chrome catgut to silk. In nine consecutive cases he has used this material with entire satisfaction.

The superficial uterine suture was intended to effect linear union of the incised peritoneum, and no attempt was made to fold that membrane into the divided muscularis in order to oppose peritoneal surfaces of relatively great areas. This constitutes a departure from Sänger's method. Schroeder* pointed out the essential weakness in the sero-serous suture, when he called attention to the fact that incised wounds with their edges accurately approximated are surer to heal than opposed peritoneal surfaces. In order that opposed peritoneal surfaces should unite, some new irritation is necessary to produce adhesive inflammation. This observation has since been confirmed by the investigation of Zweifel, Graser† and J. Veit.‡

Professor C. T. PARKES: As I was present at Dr. Etheridge's operation, I should like to say a few words in regard to some of the impressions made upon me by the operation. First, in regard to its severity; so far as my experience goes with disease or injury affecting the abdominal cavity, I am sure I have been through cases quite often that would give me a great deal more anxiety and be found more troublesome to manage than the doing of this operation. It struck me as being a very simple operation, at least to any one who is accustomed to having anything at all to do with the abdominal cavity. In the first place, the uterus is so large and it fills up so much of the cavity of the abdomen, that all the other viscera are out of the way, as was beautifully illustrated by Dr. Jaggard; there was nothing to be seen when the abdominal cavity was opened except the uterus, and it was very easy for the surgeon to open it. It was one of the easiest things imaginable to get the contents of the uterus out. So far as the flow of blood was concerned, I did not think there was any great amount of blood lost, considering the tissues divided and the size of the vessels cut. The gush is at first rather astonishing, but after a little time there is a rapid cessation of the bleeding. The bleeding in this case was very readily controlled by compression, and it did not strike me as being hurtful to the patient. I am quite sure she did not show any of the signs that are so often present when a large amount of blood is lost in other parts of the body. I am sorry that a complete post-mortem was not made after the death of the patient because I was very desirous of seeing the result of the manner of suturing that was adopted, because it struck me as being perfectly safe. After the suturing was done, the wound was perfectly dry in every way, and after this part of the work was over and the operation done, with the exception of closing the abdominal wound, no sponging was required. There seemed to be no trouble in keeping everything out of the abdominal cavity, either amniotic fluid or blood.

Another point struck me in this case, not directly in connection with Cæsarean section, but as interesting in obstetrics. I have always been taught and always supposed that, during the development of the uterus in the latter stages of pregnancy, all parts were dilated, that the cervix was opened out and became part of the body, that it was thinned out so that the cervix and body became continuous, but to my astonishment, when the body of this uterus was exposed, the cervix was perfect in shape and retained the same relation to the body as in the normal state. There did not seem to be any losing of the cervix in the body by dilatation.

The PRESIDENT: I congratulate Dr. Etheridge upon his courage in performing Cæsarean section under such adverse circumstances. Most operators would have preferred to attack the pus tumor from

*Zeitschr. d. Geb. und Gyn., Bd. 10, 395.
†Habilitationschr., Erlanger, 1886.
‡Deutsche Med. Wochenschr., 1888, No. 17.

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below, delivered the child through the vagina, and have trusted to antiseptic treatment to prevent or modify subsequent septicemia.

I wish also to congratulate Dr. Jaggard upon the completeness of his paper in placing this subject before us in its most modern aspect.

Dr. J. C. HOAG: I do not feel like saying anything after so many others have maintained silence, but I think the papers deserve to be favorably discussed, and at least some questions might be asked on the subject. I thought, while the papers were being read, of a medical meeting I attended some time ago in London, where the relative merits of Cæsarean section and craniotomy were discussed. The meeting was attended by some of the most eminent men of England, and there seemed to be a very general consensus of opinion that craniotomy should be entirely abandoned. It seemed that the discussion first arose at a meeting of the British Medical Association, and it was afterwards kept up for some time in the society to which I refer. I was a little astonished to find that, at the same time the opinion was prevalent that craniotomy (embryotomy was perhaps the term used) should be abandoned, there was not a gentleman present who knew what Sänger's operation was, and it was suggested then that some one look up the subject and report at the next meeting.

With regard to the technique of the operation I remember to have read that on one occasion, when there was quite profuse hæmorrhage and where retraction and contraction did not take place after the operation, the operator was bold enough to keep the uterus open for an hour and a half, keeping it packed with ice, and that the patient made a good recovery. I have also noticed somewhere that some operator has suggested the advisability of putting in a few sutures in the abdominal wound previous to incising the uterus, so that after removing the child the walls might be drawn together somewhat and thus aid in the prevention of accumulations in the peritoneum. I would like to hear what the gentlemen think of these suggestions.

Professor F. C. SHAEFFER: I think the essayist deserves great praise for his courage, and is to be congratulated upon the brilliant results. Considering the varied circumstances under which these operations were done, it seems to me the results were extraordinarily good. It has afforded me very great pleasure to hear these papers to-night.

Professor CHARLES WARRINGTON EARLE: I would like to ask Dr. Etheridge one question: Were you able, in the time at your command, to make any effort at trying to find, through the incision in the abdominal wall, the nature of that obstruction below? You knew there was a fluctuating tumor there; did you examine it at the time of the operation?

Professor ETHERIDGE: I did not. I was so anxious to close up everything and get it out of the way that I did nothing of the sort. I was very greatly disappointed in our inability to secure a post-mortem examination. The next morning, when I reached the hospital, about half-past nine, the body had been taken away, so that that part of it will always have to remain obscure.

In regard to doing the other operation of opening the abscess and letting the discharge come away from it, I can say this: I have my doubts as to the possibility of saving the woman under the circumstances, from the fact that the pelvic cavity was not sufficiently enlarged by the evacuation of the tumor to admit of pulling the child through. This still constitutes, in my mind, an imperative objection to opening the tumor before the attempt at Cæsarean section.

I cannot resume my seat without congratulating Dr. Jaggard upon his very elaborate and learned report of his case. I think he is certainly to be thanked by this society on the production of his paper.

Professor W. W. JAGGARD, in closing the discussion, said he was grateful to the

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Fellows for the kind attention given to his paper.

After answering Dr. Hoag's question, he said that he thought Dr. Parkes' notion of Cæsarean section, as expressed in his own words, was erroneous and calculated to mislead. The *technique* of the operation is apparently simple, but the dangers of shock, hæmorrhage, and sepsis are constantly present, and every minutest detail demanded the most critical attention. The terrible mortality of the operation with us in the United States abundantly demonstrates its formidable character.

Professor Charles T. Parkes read the following Report of FIRST FIFTY OPERATIONS FOR OVARIAN TUMORS.

In presenting for your consideration a tabulated list of my first fifty cases of operation done in succession for ovarian tumor, it will be my object to call attention to those only which seem to me to possess somewhat special characteristics, or have shown something unusual in their course. Not but what I believe that every case is of special interest to the operator, in so far as it furnishes him individually with useful experience and something new to cogitate over, and from which to elucidate improvements in future cases coming under his care. To mention all these circumstances would become monotonous.

In the final summing up I shall attempt to group together, in a somewhat practical way, the deductions which come to my mind as the outgrowth of this amount of work.

My work in this field commenced rather early in my professional career, and whatever success may have attended my efforts could not have been, and was not, the outcome of any special preparation. The first half-dozen operations were done before ever having witnessed the operation performed by any other operator.

In 1878 it was my privilege to see considerable of this kind of work executed by the attendants at the Samaritan Hospital, London, and other surgeons.

Since then, I have felt more at my ease in this labor, and could speak more emphatically as well as encouragingly to my patients. Before then the work had associated with it a large expenditure of force, both mental and physical, on the part of the operator, and I am free to admit that, as a rule, the patients did not get along as easily and smoothly as they have since. Still it has been my good luck not to have a very large percentage of mortality. The table shows that the second and the thirty-seventh cases died as the result of circumstances attending the operation. Two out of fifty—it is not a bad showing. If it is my good fortune to equal this percentage in the second fifty, no complaints will be heard from me.

CASE I.—This lady is still living in this city. She has never borne any children. The operation was done during the third year after my graduation, and is chosen for remark, first, because the case furnishes a good illustration of the impudence and assumption sometimes displayed by young and ambitious practitioners, and which causes them at times to run where angels would fear to step even slowly. I believe I invited to be present at the operation Professors Freer, Gunn and Powell, Jackson, Bogue, and some others, and they were all on hand. It has always been a mystery to me how that operation was carried on, or finished; perhaps some who were present might be able to tell, it is impossible for me to do so. However, it is clear in my mind that there was no encouragement to me in their prognostications as to the result. They were unanimous in the assertion that the issue would be fatal. But it was not, although the patient had a hard time of it for a while. Secondly, the case is of interest in the condition which made her recovery slow and full of hazard. The fourth or fifth day showed evidences of profound septic infection. An abscess was at last discovered in the cul-de-sac of Douglas. After opening and washing it out and draining thoroughly, she passed on rapidly

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to a full recovery. This latter inflammation may have so changed the remaining tube or ovary as to account for the subsequent sterility. No antiseptic precautions were adopted in this case.

CASE II.—This case was one of double ovarian tumor. The right cyst was free, non-adherent, and easily removed. The left was universally adherent to the left side of the abdomen, to the small intestines, spleen, and stomach. Its contents were so gelatinous that they were scooped out with the hands, and the cyst-wall was so thin that it broke down in many places during these manipulations, allowing the contents to become disseminated about and around the abdominal organs. The oozing was very free from the extensive surfaces of adhesions, and there was used a solution of persulphate of iron to check it. This remedy is a very unpleasant one to employ; this was the first and last case in which I have made use of it. The abdomen was washed and cleaned, as I thought, thoroughly.

A large-sized rubber drain was carried to the bottom of Douglas' cul-de-sac. The outer end of it was connected with a long rubber tube, carried outside of the bed and beneath it, and submerged in a solution of carbolic acid. The patient died on the third day of acute septicemia. The drain, carried to the bottom of the receptacle, gave exit to about two ounces of the contents of the cyst. It is fair to think that this case could be managed better to-day. No special antiseptic measures were adopted.

CASE IX.—This case was the first tumor with purely colloid contents which I had come across. It was with the utmost difficulty that its contents could be emptied out of the rather small incision which exposed the tumor. Still, by persevering effort, it was all dug out, and as few and recent adhesions only were found, the empty sac was pressed out and rather easily removed. I have seen such cases treated by enlarging the abdominal incision in order to turn the mass out entirely. It has struck me that this method was not as good as emptying the cyst through the small incision. As all the cases turned out *en masse* have died, that fact may have influenced the formation of the opinion expressed. The cause of death may have been something else.

CASE XXVI.—This case was the youngest person upon whom I have operated. Owing to the great size of the tumor, as compared with the size of the body, she presented a very odd appearance.

In order to maintain an equilibrium while in the erect position the shoulders were thrown far back—a plumb dropped from the shoulders touched the floor six inches behind the heels.

The tumor was a dry one, and before it could be extruded the abdominal incision was prolonged above the umbilicus. For such a massive tumor the pedicle was very small as well as elongated. The weight of the tumor was fourteen pounds. The case was to me particularly interesting because it was the only one of the series in which any attempt was made to carry out *in full* all the details of a Listerian operation, including the spray. Notwithstanding all this, an abscess formed in the left iliac fossa, which delayed the recovery for weeks and placed her life in great danger, especially as, even after it was opened externally, it seemed to empty internally into the bladder; large quantities of pus were passed from that viscus.

At the end of six weeks she had entirely recovered. This was the only case in which I have been haunted with the fear that I might have left some foreign body in the abdominal cavity, such as a sponge or a pair of forceps.

The sequelæ showed it to be a groundless fear fortunately. The subsequent history of this case is also interesting.

At the end of two years she again came under my care with the abdomen distended with a large growth.

This secondary growth commenced in the

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upper zone of the cavity and in its development increased downward. It was diagnosed to be post-peritoneal, on account of the crackling which could be produced by manipulation in circumscribed spots over the surface of the tumor. The noise was evidently produced by the displacement of intestinal gases over limited spaces.

Upon opening the abdomen, the mass was found entirely behind the peritoneum, which was opened posteriorly and the tumor easily enucleated. As far as could be determined, the mass grew from the lesser end of the pancreas.

She did not survive the shock of the operation but a few hours. The mass proved to be sarcomatous. A post-mortem examination showed no traces of even the stump of the first tumor.

Dr. Fenger was present at the first operation and pronounced the tumor to be a heterologous growth.

With an entire absence of any remnants or signs of the primary tumor, it seems rather difficult to trace any connection between it and the secondary manifestation.

CASE XXXV.—This was a case of double papillomatous ovarian cyst, in which the tumors had become intimately adherent, filled up the pelvis entirely, so as to absolutely conceal the womb and bladder. The cysts had ruptured so that in themselves they were small. The abdomen was distended with an immense quantity of free fluid. They were freely enucleated from their bed and from the surface of the uterus and bladder and removed. There was left as the result of this extensive peeling a surface coequal in size with the capacity of the pelvic basin. After securing the pedicles and a few spurting arteries, the bleeding was easily staunched and showed no disposition to return after the introduction of a large drainage-tube to the bottom of the cavity and closing of the abdomen. I have never seen a larger flow of serum from a drainage-tube than followed in this case for several days. Fortunately no infection of the general peritoneal surface had occurred, so that the lady recovered very rapidly and is well and strong to-day. The free drainage in this case, I have no doubt, contributed very greatly to the easy recovery. Without it I believe the patient would have been suffocated by accumulation of serum, certainly no powers of elimination could have removed the amount of fluid drained.

CASE XXXVII.—This case was certainly the worst I have ever met with so far as extent and firmness of adhesions go. It was universally adherent to the abdominal walls, the small intestines, the bladder, the uterus, the under surface of the liver, and to the stomach. In fact, at only one place was a space as large as the surface of the hand untrammeled by adhesions. This was around and about the pedicle. After separating the attachments to the abdominal walls down to this space on the right side, the pedicle was ligated and divided. It seemed impossible to reach the limits of the tumor from the anterior surface upwards, so after securing the pedicle the sac was turned upwards and the separation of the adhesions carried on from behind. It was a very slow and tedious piece of work, separating coil after coil of small intestine. When the stomach was reached, the adhesions were found so firm and extensive that it was deemed best to leave a large piece of the external layer of the sac-wall attached thereto, rather than to try to separate them. This was accordingly done. All of the tumor except the piece left on the stomach was finally removed. There was not an excessive amount of bleeding, and the abdominal cavity was readily cleansed and a drain put in.

The operation was done in Nebraska, and I had to leave the patient within two hours after the operation was finished. She was then in good condition. She died on the sixth day, as the doctor in charge wrote me, with all the symptoms of unrelieved obstruction of the bowels. Perhaps if the abdomen had been re-opened early in the manifestations of these symptoms, the obstruction might have been overcome, but

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this can only be a supposition. This was the second and last death in the series of fifty cases.

CASE XXXVIII.—The tumor in this case was accidentally discovered while operating upon a growth developed in the abdominal walls over the neighborhood of the gall-bladder and from which there was removed a gall-stone of considerable size. Some months after the recovery from this operation, laparotomy was done for the small tumors which filled the pelvis and were developed from both ovaries—the right one much larger than the left, but both small. They proved to be ruptured cysts, showing papillomatous degeneration. Some six weeks after this operation, after the wound had united well and recovery seemed established, she developed increasing symptoms of bowel obstruction. Examination of the rectum revealed a cancerous mass at the upper end of the rectum, probably also involving the sigmoid flexure. She was anæsthetized and the narrowed channel well dilated, sufficiently at least to relieve the accumulated contents. Still the patient gradually emaciated, and at the end of a week or ten days succumbed to the effects of the complication.

CASE XLI is only remarkable from the age of the patient—78 years old—and the perfectly uneventful recovery after the operation. Looking back at the case, I remember the impression made upon me at the time was that she was the most contented patient ever under my care.

No anxiety or worry of any kind was manifested. Everything done was good enough for her and gracefully accepted. The querulousness and disposition to be exacting sometimes supposed to go with old age was never displayed. I am quite sure her peaceful disposition had much to do with her speedy and happy recovery. I have since operated on a lady 68 years old for an ovarian cyst, and the results were nearly alike. So far as these two cases are of account, nothing whatever occurred that would make quite old age militate against the performance of the operation. The shock did not seem so great as in many other easier cases in younger patients, and the reaction was quite as prompt and harmless.

The case under consideration was a large multilocular cyst with thick walls and septa. The previous tappings had not apparently left any unfavorable conditions in their wake. The adhesions present gave no noticeable trouble.

CASE XLII.—This was my first case of twisted pedicle. The inflammatory symptoms—peritonitis—high fever, and extreme prostration had existed several days before the patient came under my care. Operation was advised and done immediately. The bad symptoms subsided at once, and the recovery was uneventful.

There followed in due course quite a large ventral hernia, although primary union occurred in the wound, at least in the skin.

It is possible that the usual care in picking up surely each layer of the abdominal wall was not followed in closing the incision, but I was not aware of leaving anything undone in that respect at the time of the operation. The diagnosis of twisted pedicle was based upon the previous existence of the tumor, its sudden and rather rapid enlargement, extreme tenderness of the tumor followed by the usual symptoms of peritonitis and constitutional manifestations of early and severe character. There was present also a free flow of dark blood from the uterus, commencing with the first symptoms and persisting.

CASE XLV was the second tumor removed having very thick colloid contents. It was perfectly symmetrical and free from adhesions of any importance.

The contents were extremely tenacious, and their removal to diminish the size of the cyst was attended with extreme difficulty. The cyst was held very carefully against the edges of the abdominal incision during these efforts, in order to avoid the entrance of any of the stuff into the peritoneal cavity. It is much easier to keep it

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out entirely than it is to get it out after it has once gained admission into that cavity. On two occasions the leaving of a very little of this material in the cavity inadvertently has given rise to serious complications in my experience.

CASE LX.—This case was also one of twisted pedicle; the symptoms of rapid increase in size, tenderness, and uterine hæmorrhage coming on suddenly and persisting, with developing peritonitis, were plainly present in the case and early operation advised. Consent to operate was not obtained readily, and when the incision was made the cyst and pedicle were found black.

Ulceration between the living and dead portion of the pedicle had well advanced at the site of the twist lowest down on the pedicle. Its complete separation was unattended with hæmorrhage. The case did well from the very first day.

REMARKS.

It has always been my aim to do every one of the operations here recorded with closer and closer attention to absolute cleanliness of person, assistants, patient, and of appliances.

As time passed along, more experience gained, and complicating difficulties traced to their cause, after suffering manifold mental worry over them, this aim has been better and more certainly attained, with a corresponding increase in confidence in myself and ability to make assurances to the patient with an abiding faith in their fulfillment.

There is no doubt in my mind whatever about the good done a patient by relieving her mind of doubts and nervous dread preceding the operation, as can be done by confident assertion. The success attained in ovariotomy of late years warrants an indulgence in very strong assurances on the side of recovery in all classes of cases.

The attempts to secure asepsis—to surely save one's patient from the dangers of fermentation, suppuration, and decomposition of wound secretions—brooks no neglect of any kind in the items already mentioned. It is not a pleasant thought to be forced to the conviction that you have rewarded the confidence and faith reposed in you by carrying to the afflicted one the elements which, once developed, so often destroy life, especially if the misfortune be the result of carelessness or over confidence. So nothing that is used or brought in contact with the patient should be allowed to pass without the closest inspection by the operator himself. The patient puts her life in the operator's hands, not in those of an assistant, and is entitled to the former's own care and attention to the smallest detail in the preparation of needles, forceps, and instruments of all kinds, ligatures, sponges, and dressings. It is my conviction that sponges should not be used the second time in abdominal operations, no matter how well they are cleaned. They are so difficult to free absolutely from the contamination of blood and secretions that one can scarcely be sure of them. Besides, the operation is so well paid for in most instances, and the material so cheap, that there seems no excuse to run any danger whatever.

The greatest diligence should be observed in keeping everything harmful out of the peritoneal cavity. Reference is made not so much to foreign bodies of large or small size, although such ought never to occur, as to the escape of the contents of the cyst into the cavity. To me it has always been a very difficult undertaking to clear out any such secretions, especially if they are from a cyst with sticky contents. In two cases I worked for fully an hour in my desire to be sure that all particles had been removed, and yet in both cases an abscess subsequently formed, accompanied with a formidable temperature and general exhaustion. These accumlations were fortunately found and opened. Their contents showed more or less of the same material that filled the cyst, and the trouble was evidently dependent upon its presence

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in the cavity. The stuff will not flow through a drain easily, so that I am not sure its use would have overcome the difficulty.

The contents can usually be kept out of the peritoneal sac by making the cyst constantly expand the edges of the abdominal incision during the necessary manipulations, by careful pressure against the tumor by an assistant.

The ligatures used have always been of carbolized silk, and they have never given rise to any trouble. In the greatest number of cases the pedicle has been clamped, the tumor removed, and the stump thoroughly cauterized down even with the clamp. Then the pedicle was sufficiently subdivided just below the clamp and ligated with silk, after which the clamp was removed and the stump dropped. I have never had, following this method, any bleeding, or been called upon to reapply the ligature, or fish up a stump out of the pelvis after it had been dropped, to stay hæmorrhage. It is the method used by Dr. Homan, of Boston.

Accidents such as indicated have hapto me when using other methods, and I have seen them occur in the hands of other operators.

Perhaps I may be pardoned for uttering a warning against using the ends of a ligature just tied for the purpose of bringing the tied tissue into view for inspection, especially against using them to in any way steady or lift the pedicle. This latter should always be fixed and manipulated with a pair of forceps fixed to its edge below the site of ligation. On more than one occasion traction on the ligature, apparently slight, has destroyed its compression and induced bleeding, or even torn it entirely loose, necessitating a tedious search for the lost stump in order to re-tie it; and one never feels as certain of the security against hæmorrhage after such an accident, aside from the delay and annoyance caused.

My experience confirms the great worth and necessity for the drainage-tube in many cases. Cases with many vascular adhesions leaving extensive oozing surfaces seem to always require the drain. Many cases would undoubtedly do better with it, even in which the raw surface is not large. One is more apt to err on the side of leaving it out than of making use of it too frequently. It takes but little over-weight of absorption and elimination of even not badly contaminated fluids to upset a patient's easy recovery, which might have all been obviated by the use of a drain for twenty-four or forty-eight hours. I have not noticed much difference in its workings, whether it be of glass or rubber; I have used both and the object aimed at was accomplished by either equally well.

The abdominal wound has always been closed with the silk suture passed carefully and carried through the different layers of the abdominal walls, including the peritoneum. It does not seem that any more satisfactory method has been advanced. It is quickly executed, and absolutely trustworthy in the vast majority of cases. Two of my cases have had ventral hernia follow; but I am inclined to think other things had something to do with the occurence of the complication, such as too early assumption of the erect position, too free motion, and discarding the abdomiual support too soon. Very few of the cases have shown any suppuration in the track of the sutures, or other complication in the line of the incision; certainly no more that six gave any trouble whatever. In very thick, fat walls, the use of three or four button-stay sutures, introduced well away from the edges of the incision, is of great advantage in maintaining the parts in close apposition and conducing to early and firm union.

In the after-treatment of the earlier cases it was the rule to use the catheter to empty the bladder six hours after operating. Quite a number of the cases developed a troublesome cystitis, and in some cases a urethritis, no matter what care was taken with the instrument or in its intro-

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duction. Of late it is not used unless absolutely required. The patient is induced to make earnest efforts at self-relief, and success generally follows these efforts, and the cystitis has ceased to be a complication.

It has become my habit not to feel concerned about a temperature up to 101° Fahr., coming during the first three or four days after an operation, if it be unaccompanied with unusual pain, headache, or anorexia. By securing a free action from the bowels by the administration of ·5 grs. of hydrarg. submur., followed in due time by some saline cathartic, and urging the patient to partake freely of water, the temperature ordinarily drops to about normal in twenty-four hours. If, with a nearly normal temperature for several days after operation, it suddenly mounts to 100° or more, some complication is impending, and it must be sought for with great care. Latterly it has been a surprise to me how many of the cases go on to a safe recovery without the administration of any medicine. If sepsis is avoided, the individual's own powers of repair seem entirely competent to combat other complications with the simplest of assistance. When pain is a complication, rectal injection of the tr. opii deodorata, in full, free doses (30 drops or more), has always seemed to cause the least disturbance and accomplish the best results.

In none of these cases did there arise any necessity for re-opening the abdominal wound.

The highest temperature recorded occurred in the twenty-sixth case, in which 104° was present for several days. The abscess was found and opened and the girl got well. Cases one and nine, forty-five and forty-seven, also had abscess collections, with high temperatures. The collections of septic matter were opened where developed, and the cases finally recovered; but the complication entailed upon them a slow recovery and a weakened general condition which those escape who pass through their ordeal free from such complication.

Both with these serious conditions and other slighter ailments, less severe but absent entirely in perfectly aseptic cases, the fault must be laid upon my own shoulders. At first lack of experience, then want of attention to detail in appliances or surroundings, and finally, perhaps, over self-confidence. It is my belief that he will have the best success who is modest enough to be haunted by some doubts about himself, and so to be ever on the watch to prevent the entrance of harm from without.

The internal remedies from which the best results have been obtained for the relief of tympanitis are the spts. terebinthina and tr. nux vomica; the former to allay gaseous fermentation and as an antiseptic; the latter acting probably as a stimulant to intestinal peristalsis. It has never seemed to me that much of any good was accomplished by the rectal tube. It is not my wish to advise against its use, for many operators believe in its efficiency and use it constantly. It is quite possible that I do not use it skilfully. However that may be, I do not remember to have gained much if any good by its use. Cases in which the introduction of the rectal tube released any amount of gas could always relieve themselves by exercising a little will power, partially that of relaxation of the sphincter, mainly that of contraction of the abdominal walls. It has seemed to me that its presence in the rectum, if left there, as is practiced by some, might be of service as a foreign body in exciting peristalsis. Tympanitis, like so many other complications when they come, is usually the result of septic infection, and is best dealt with by keeping the germs away from the patient before, during, and after the operation.

The fluid I am in the habit of using for purposes of washing or irrigation is plain distilled or boiled water, with the addition of a small quantity of carbolic acid, making a solution of a strength of about

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two per cent. It does not seem certain that the germicidal power of this solution is of much consequence, still it does not seem worth while to dispense with it entirely. In washing out the peritoneal cavity, if occasion requires, a strong solution of boracic acid is used, and has done its work harmlessly and satisfactorily. Of course, reference is made here entirely to ovarian tumors, pure and simple. Infected cases, with pus present and other harmful fluids, require more powerful antiseptics and assiduous care in getting rid of their presence by every known means.

The fifth and thirty-fifth cases of this series showed papillomatous degeneration and rupture of the cyst wall, with the presence of extensive accumulation of ascitic fluid, rendering the diagnosis extremely uncertain. I have operated on several cases since, and they have all been difficult to diagnose and to handle. Fortunately, these two presented no secondary infection of the peritoneum, and they recovered.

The diagnosis must be made by a process of exclusion:

Heart dropsy, by its absence of facial œdema and heart lesions. Kidney dropsy, by the absence of leg œdema and the signs of kidney degeneration as shown by the microscope. Ascites, from liver or vessel obstruction, by absence of the manifestations of disease of those organs, as shown by careful physical examination and inquiry as to their usual constitutional manifestations.

Digital examination in all the cases seen by me has demonstrated the presence of a somewhat circumscribed mass in the pelvis from which the uterus could be isolated. The feel of the mass itself gives one the sensation of touching an irregular, doughy, cauliflower-like tumor. The differential diagnosis from tubercular peritonitis with ascites will be, in the absence of the tumor from the pelvis and the presence of a greater or less number of irregular, hard, perhaps movable, masses distributed through the cavity, showing involvement of the omentum.

Differential diagnosis of cancer will be probably in the fact that the latter shows less ascitic accumulation, a more easily defined mass much harder to the touch. Examined through the pelvis, every tissue is apt to show infiltration; the uterus is fixed and implicated in the growth; the roof of the pelvis everywhere hard and resisting. There will more likely be evidence of interference with the circulation of one limb, as shown by œdema confined to one side. Enlarged and tortuous external abdominal veins and more rapid and profound constitutional manifestations will be present. Even after rupture of the sac and moderate infection of the peritoneum, these cases seem to do perfectly well after operation and removal.

It seems to be of paramount importance to institute such care of the patient as will most surely prevent, diminish, or overcome the occurence of shock. After every severe operation, much can be done by the use of external warmth, and also care during the progress, by keeping wet clothes away from the body. I am still convinced of the efficacy of morphia and quinia administered half an hour or so previous to the commencement of an operation.

It can scarcely be denied that the patients do best if little, or better still, nothing, is put into the stomach for twenty-four hours or more. If introduced, the effect is merely to increase the disposition to vomit.

Judging from the results of considerably over one hundred laparotomies for different diseases, I think it proper to say that as a rule an operation for the relief of a simple ovarian tumor is about the simplest proceeding the surgeon is called upon to do in the abdominal cavity, and one from which the patient is most likely to recover.

Professor C. T. PARKES, in closing the discussion, said: There is very little to say, except, perhaps, in reference to what was

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No. of Operation.	Date.	Name.	Age.	Kind of Tumor.	Which Ovary.	Catamenia Since.	Children Before.	Children Since.	Married or Single.	Health Since.	Incision.	Rupture.	Ligatures Heard From.	Twisted Pedicle.	Weight.	Drainage.	Adhesions.	Pedicle, Kind and How Treated.	Result.	Remarks.
1	Sept., '71	Hughes	23	Multiloc.	R	No	No	No	M	Good	S	No	Yes	No	27 lbs.	No	Yes	Transfixed; ligated	R	Ligature discharged through abscess in cul-de-sac of Douglas two weeks subsequent.
2	" '71	*Forberger!*	35	Mul. colloid	R & L	?	Yes		M	Died	L	No		No	43 "	*Yes*	Yes	Long pedicle; transfixed and ligated.	D	Left very large; right small and single. Tapped once previously.
3	" '73	Winchell	49	Mul. cyst	L	No	No	?	M	Good Died 1880	S	No	No	No	34 "	No	Yes	Moderate pedicle; transfixed and ligated; silk.	R	Right ovary also removed; cystic degeneration. Tapped twice.
4	" '73	Peters	37	Broad lig. cyst	R	Yes	No	?	M	In 1881 Good	S	No	No	No	23 "	No	Yes	(Enucleated) ligated; silk	R	Cæcum and colon carried upon wall of tumor some distance.
5	" '73	O'Mally	45	Double papilloma	R & L	No	Yes	No	M	Good Died 1884	L	Yes	No	No	42 "	Yes	Yes	Short; transfixed; clamped, cauterized, and ligated.	R	Cyst small.
6	" '73	Carney	44	Unilocular	R	No	Yes	No	M	Good Died 1878	S	No	No	No	26 "	No	No	Fair; transfixed and ligated.	R	Contents milk-white.
7	April, '73	McGovern	33	Multiloc.	L	Yes	No	Yes	M	Good	S	No	No	No	21 "	No	Yes	Long; transfixed and ligated.	R	
8	" '74	Hunt	39	Unilocular	L	?	Yes	?	M	Good	S	No	No	No	33 "	No	No	Long and slender; transfixed and ligated.	R	Thick walls; chocolate-colored fluid.
9	" '74	*Edwards!*	41	Colloid tumor	R	Yes	No	No	M	Good	L	No	No	No	32 "	No	*Yes*	Broad; short four sections; clamped; cautery; ligated.	R	?
10	" '75	Foster	52	Multiloc	R	No	7	No	M	Heard 3 years after, Fair	S	No	No	No	24 "	No	Yes	Short and broad; transfixed, ligated, and cauterized.	R	
11	May, '75	Martin	57	Broad lig.	L	Yes	No	?	M	Don't know	S	No	No	No	28 "	No	No	Transfixed and ligated.	R	Enucleated.
12	Sept., '75	McNulty	28	Multiloc.	L	Yes	No	?	M	Good	S	No	No	No		No	Yes	Ligated in many sections and divided.	R	Also removed mass of omentum
13	Dec., '75	Jones	48	Multiloc. cyst	L	?	5	?	M	5 years after, Fair	S	No	No	No	22 "	No	Yes	Thick; transfixed and ligated.	R	No answer to letter.
14	" '75	Hunter	55	Multiloc. cyst	R	No	2	No	M	Fair Died 1876	S	No	No	No	25 "	No	Slight	Short and thick; transfixed, ligated, and cauterized.	R	
15	Jan., '79	Hedrick	62	Multiloc. cyst	L	No	3	No	M	Fair 3 years after	S	No	No	No	18 "	No	No	Moderate; transfixed, ligated, and cauterized.	R	
16	" '79	Phillips	36	Multiloc. cyst	L	Yes	No	No	M	Poor	L	No	No	No	39 "	Yes	Yes	Broad, short and thick; transfixed, ligated, and cauterized.	R	Semi-solid contents.

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No. of Operation.	Date.	Name.	Age.	Kind of Tumor.	Which Ovary.	Catamenia Since.	Children Before.	Children Since.	Married or Single.	Health Since.	Incision.	Rupture.	Ligatures Heard From.	Twisted Pedicle.	Weight.	Drainage.	Adhesion.	Pedicle, Kind and How Treated.	Result.	Remarks.
17	Mar., '79	Henderson.....	29	Uniloc. cyst	L	?	No	?	M	Good	S	No	No	No	18 lbs.	No	No	Moderate; transfixed and ligated.	R	
18	Mar., '79	Pollock.....	31	Multi. cyst, colloid	R	?	?	?	M	Fair	L	No	No	No	23 "	No	Yes	Medium; transfixed, ligated, and cauterized.	R	
19	June, '79	Probiski.....	25	Mult. cyst. Uniloc. cyst.	R	Yes	?	?	M	Fair	S	No	No	No	38 "	No	Yes	Fair; long and broad; transfixed, ligated, and cauterized.	R	
20	" '79	Healy.....	18	Parovarian cyst..	L	Yes	?	1	S	Good	S	No	No	No	23 "	No	No	Short and broad; ligated in four sections.	R	
21	" '79	Dayton.....	36	Dermoid cyst	R	Yes	2	No	M	Fair	S	No	No	No	18 "	No	Yes	Broad; transfixed; ligated in three sections.	R	Adherent portions of cyst wall, to cæcum and uterus left
22	Nov., '79	Johnson..... ...	43	Parovarian cyst..	L	?	No	No	M	Good 5 years ago.	S	No	No	No	23 "	No	No	Long and slim; transfixed and ligated.	R	
23	" '79	Jones.....	23	Multiloc. cyst....	R	Yes	No	No	S	Good	S	No	No	No	19 "	No	Yes	Broad; ligated in three sections and cauterized.	R	
24	" '79	Mason.....	66	Multiloc. cyst....	L	No	3	No	M	Died 2 years after. F'ir to death.	S	No	No	No	19 "	No	Yes	Broad; transfixed and ligated.	R	
25	'80	Mastin.....	39	Parovarian cyst..	R	Yes	?	?	M	1883 Good	S	No	No	No	23 "	No	No	Broad; ligated in four or five places.	R	Enucleated.
26	Aug. '81	M. Herman.....	7	Sarcoma.....	R	No	No	No	S	Good	L	No	Yes	No	14 "	No	Yes	Long; transfixed and ligated.	R	Died three years subsequent; return of disease in pancreas
27	June, '82	Peterson.....	24	Multiloc. cyst	R	No	No	.....	S	Good	S	No	No	No	35 "	No	Yes	Long and slender; transfixed, ligated, and cauterized.	R	
28	Feb., '83	Allen, Mary....	18	Multiloc. cyst....	R	Yes	No	No	S	Good	S	No	No	No	26 "	No	No	Broad and short; transfixed, ligated in four sections, and canterized.	R	
29	June, '83	Connelly, Bdgt.	47	Multiloc. cyst....	R	No	Yes	No	M	G'd to death.	S	No	No	No	34 "	No	Yes	Four inches long and three broad; transfixed, ligated, and canterized.	R	Died 1885.
30	" '83	Mackey, Maggy	23	Simple cyst	R	Yes	No	No	S	Good	S	No	No	No	16 "	No	No	Moderate; transfixed, ligated, and canterized.	R	
31	" '83	O'Neil.....	48	Multiloc.....	R	No	No	No	M	Good	S	No	No	No	37 "	No	Yes	Broad and short; transfixed, clamped, canterized, transfixed, and ligated.	R	
32	'84	Dwyer, Marg...	46	Dermoid cyst....	L	No	Yes	No	M	Fair	L	No	No	No	15 "	Yes	Yes	Short; transfixed, ligated, and cauterized.	R	Bone, teeth, hair, etc. Died in 1886.
33	'84	Haggerty Nellie	19	Simple cyst.....	R	?	No	?	S	Good	S	No	No	No	32 "	No	No	Broad and thin; transfixed, ligated, and cauterized.	R	
34	Sept., '84	Riley, Mary....	25	Multiloc. cyst....	L	Yes	No	No	S	Fair	L	No	No	No	27 "	No	Yes	Thick and broad; transfixed and ligated in three sections.	R	

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No. of Operation.	Date.	Name.	Age.	Kind of Tumor.	Which Ovary.	Catamenia Since.	Children Before.	Children Since.	Married or Single.	Health Since.	Inclalon.	Rupture.	Ligatures Heard From.	Twisted Pedicle.	Weight.	Drainage.	Adhesion.	Pedicle, Kind and How Treated.	Result.	Remarks.
35	'84	*Emerson!*	33	Double papillomatous cyst....	R & L	Yes	No	No	M	Good	S	Yes	No	No	38 lbs.	Yes	*Yes*	No pedicle; everything ligated and cauterized.	R	Large amount of fluid drained off.
36	Nov., '85	Murphy.....	44	Multiloc.....	R	No	5	No	M	In 1886 Good	S	No	No	No	52 "	No	Yes	Narrow and short; transfixed, ligated, and cauterized.	R	Catamenia ceased two years previous.
37	June, '85	*Rush!*.....	43	Multiloc. cyst....	R	No	Yes	No	M	Died	S	No	No	No	40 "	No	*Yes*	Transfixed and ligated.	D	Death in six days from obstruction of bowels.
38	April, '85	*Piper!*.....	51	Double ovarian..	R & L	No	Yes 5	No	M	Poor. Died 2 mos.	S	No	No	No	4 "	Yes	Yes	Short; transfixed, ligated, and cauterized.	R	Died two months after; cancer of rectum.
39	Sept., '85	Morrill.....	39	Dermoid cyst....	L	Yes	No	No	M	Good	L	No	No	No	18 "	No	Yes	Broad and thin; transfixed and ligated.	R	Surface of uterus sewed over for hæmorrhage.
40	" '85	Patterson.....	37	Multiloc. cyst....	L	Yes	Yes 2	No	M	Fair	S	No	No	No	35 "	No	No	Long; transfixed, ligated, and cauterized.	R	
41	'86	Holland.....	78	Multiloc. cyst....	R	No	Yes 8	No	M	For 1 year Fair.	L	No	No	No	43 "	Yes	Yes	Broad; ligated in four sections and cauterized.	R	Tapped three times. Died one year subsequent.
42	Jan., '86	*Ripkow!*.....	49	Multiloc. cyst....	R	Yes	Yes	No	M	Good	S	No	No	Yes	25 "	No	Yes	Long and narrow, and twisted three times; suppuration commenced; ligated below line of demarkation.	R	Uterine hæmorrhage previous. Ventral hernia subsequent.
43	Aug., '86	Lewis.....	31	Multiloc. cyst....	L	No	No	No	M	Poor	L	No	No	No	22 "	No	Yes	Short; transfixed, ligated, and cauterized.	R	
44	'86	Meehan.....	25	Uniloc. cyst.....	L	Yes	No	No	S	Good	S	No	No	No	26 "	No	Yes	Transfixed, ligated, and cauterized.	R	Peeled out.
45	'86	*Bick, Honora!*..	23	Colloid.....	R	?	Yes 2	No	M	Good	L	No	No	No	27 "	No	Yes	Fair; transfixed, ligated, and cauterized.	R	Dug out before removal. Twenty-two stitches.
46	June, '86	Anderson.....	43	Uniloc. cyst.....	L	No	No	No	M	Fair	S	No	No	No	30 "	No	Yes	Slender; transfixed, ligated, and cauterized.	R	Both ovaries removed. R. ovary diseased.
47	'86	Conroy..... ...	52	Multiloc. colloid.	R	Yes	Yes 12	No	M	Good	S	No	No	No	26 "	No	No	Broad and short; ligated in three sections.	R	
48	'87	Mitchell, Mag..	13	Multiloc. cyst....	R	Yes	No	?	S	Good	S	No	No	No	18 "	No	No	Broad and long; transfixed, ligated, and cauterized.	R	
49	'87	Muldahl..... ...	37	Multiloc.....	R	Yes	No	No	M	Good	S	No	No	No	36 "	No	Yes	Long and thick; transfixed, ligated, and cauterized.	R	
50	'87	*Hamilton!*.....	44	Multiloc.....	R	No	Yes 1	No	M	Good	S	No	No	Yes	21 "	No	Yes	Twisted and long; transfixed, ligated, and cauterized.	R	Uterine hæmorrhage and peritonitis previous.

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said about the simplicity of the operation. I tried to make it plain that in reference to many other operations that are done in the abdominal cavity it is simple, not in reference to all operations. Surgeons in all parts of the country are doing ovariotomy, and the result is favorable in most of these cases; it must be a simple operation or the results would not be so favorable.

I believe I was right in Dr. Jaggard's case in saying that the technique of Cæsarean section is simple. It is not simple for the patient and never will be. The only reason why it can ever be safe rests in the employment of aseptic surgery. So I believe that laparotomy for simple ovarian tumor, compared with other operations the surgeon is called upon to do in the abdominal cavity, is the simplest.

STATE MEDICAL SOCIETY OF WISCONSIN.

FORTY-SECOND ANNUAL SESSION, HELD IN MILWAUKEE JUNE 6, 1888.

Dr. L. G. Armstrong, of Boscobel, President.

FIRST DAY—Morning Session.

Dr. J. R. Barnett, of Neenah, read a paper on "The Antipyretic and Abortive Treatment of Typhoid and Remittent Fevers." He maintained that the bacillary origin of typhoid fever is so generally conceded that it may be accepted by practical physicians. This affords the basis for a rational search for some antidote to the disease—that is, for some agent inimical to the existence or development of the micro-organism, or elimination of the products of its vital activity and decay, or both. And upon this belief in some infecting microbe as the cause of typhoid fever the specific treatment as it stands to-day has been built.

"Therapeutics of Oxygen" was the title of a paper by Dr. A. J. Hodgson, of Waukesha. He believes that it stimulates the organic activity of the red-blood globules, and can be used in anæmia, albuminuria, all wasting diseases, and dyspepsia. He attributes the sources of failure in its use to, (1) impure gases used; (2) want of proper discretion in the selection of cases; (3) injudicious exhibition; (4) neglect to regulate the personal habits of the patients; (5) neglecting to use rational and necessary auxiliaries; (6) want of due perseverance.

He reported the following case of Bright's disease: The urine showed great profusion of uric acid crystals, and, when boiled, it could not be poured out of the test-tube. By weight there was 3⅛ per centum of albumen. Countenance was pale, appetite very poor. The patient was given eight gallons of oxygen a day for seven weeks, his condition at the end of that time being as follows: Casts and uric acid had almost entirely disappeared; albumen less than one fourth of one per cent.; countenance much more natural, and he could walk four miles a day, whereas at the beginning of treatment he could not walk more than four blocks without great difficulty. To-day he is in business and feels well.

A report of a case of Calculus Renalis by Dr. R. Zimmerman, of New Cassel, was read by title.

Dr. J. S. Walbridge, of Berlin, read a paper entitled, "Observations on Influenza."

He describes three forms: 1. Those in which the respiratory tract and mucous cavities of the head are principally involved. 2. Those in which the nervous symptoms predominate. 3. Those in which the digestive organs are affected, accompanied by symptoms resembling rheumatism.

The indications for treatment are to relieve distress and support the patent. There are no preventives, no specifics, and expectorants are of but little use. Diaphoretics and anodynes are required in the first stage; quinine, tonics, and nourishment in the latter stages.

FIRST DAY—Afternoon Session.

Dr. Lucy E. Ermine, of Chicago, read a

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paper on "Electricity as a Practical Therapeutic Agent in Gynæcology," with a report of its use in five cases.

Dr. E. W. Bartlett, of Milwaukee, read a paper entitled "Otitis Media Purulenta," and exhibited and commended the autophone invented and patented by Mr. J. A. Maloney, of Washington, D. C.

FIRST DAY—Evening Session.

Dr. W. P. Hartford, of Beetown, read a paper on "Catarrhal, or Winter Fever."

In the treatment, calomel in grain doses, repeated every four hours, combined with small doses of Dover's powder, has a beneficial effect. Antipyrin gives great relief for several hours, and may have a beneficial action, especially where there is incipient lung complication. In children with congestion of lungs or capillary bronchitis aconite is admissible, but in cases of lobar pneumonia veratrum is better and much easier. On account of the intermittent character of the fever, quinine would seem to be indicated, but it has little or no effect on the temperature; it does not shorten the attack, and often irritates the already weak stomach.

Dr. Townsend read a paper on "The Summer Diarrhœas in Children."

Deaths from intestinal diseases range from 20 to 25 per centum according to location, 85 per centum of these being in children under five years of age.

Treatment must be divided into preventive and medicinal. We should look first to the surroundings, for bad drainage, bad air, overcrowding, dirt, improper food, and clothing.

Professor Leeds, of Stevens Institute, gives the following formula, which he claims as the nearest approach to mother's milk.

1 gill fresh unskimmed cow's milk.
1 gill of water.
2 tablespoonfuls of rich cream.
200 grains of milk sugar.
1½ grains of extractum pancreatis.
4 grains of bicarbonate of soda.

Put this in a nursing-bottle, and place it into water made so warm that the hand can not be held in it without pain longer than one minute. Keep the contents of the bottle at this temperature twenty minutes, and prepare a fresh lot at each nursing.

SECOND DAY—Morning Session.

Dr. Joseph Schneider, of Milwaukee, read a paper on "Blennorrhœa, Acute and Chronic."

Dr. S. B. Buckmaster, of Mendota, read a paper on "The Importance of a Careful Examination of the Alleged Insane before their Committal to a Hospital."

Almost every person of the present time has some conception of insanity, though that conception is usually of an ideal and exaggerated character.

At the present time there are 3,000 insane persons in the state of Wisconsin.

Of 252 cases admitted to the State hospital in 1887, 38.15 per centum were over 60 years of age. Of 29 deaths during 1887 out of a total of 788 treated, five were between 60 and 70 years of age, and five were over 70.

Dr. J. S. Christison, of Cottage Grove, read a paper entitled "Our Duty to Our Insane."

Dr. James A. Jackson, of Madison, read a paper on "Litholopaxy," with a report of a case.

Dr. G. M. Steele, of Oshkosh, read a paper on "A Clinical Illustration of Localization of Cerebral Function," with a report of a case.

Michael M——, aged 17 years, Norwegian, weight 103 pounds, of slim build, with good family history, except the death of his father from cancer. He was a laborer in a sash, door, and blind factory, and on the morning of July 9, 1887, while cleaning away rubbish from under the table of a machine, he raised his head against a saw of about 9 inches in diameter running at a high rate of speed. The scalp wound extended one-third of an inch to the right of median line, and about one

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inch posterior to the parieto-frontal articulation over the parietal eminence and downward, describing two curves, and ending about one and three-fourths inches above and a little in front of the left ear. The wound of the parietal bone measured two and three-quarter inches. An estimate of depth of the wound at deepest point made with considerable care placed it at five-eighths of an inch. The hæmorrhage was profuse, yet the boy was brought to the office something more than a mile distant from the factory. His intellect was undisturbed from the reception of the injury, and he complained only of weakness and numbness of his right hand and arm. This condition of the right arm and hand was felt immediately after injury. The wound was carefully cleansed and dressed antiseptically, the upper portion stiched and lower angle left open for drainage. The next day convulsive seizures, slight and of short duration, attacked the affected arm, and the second day after receiving the injury, the whole right side became involved in those convulsive movements, which were not severe. There were three between 2.30 and 10 p. m., and five between 10 p. m. and 12 p. m. At 1 a. m on the third day, one occurred lasting ten minutes, another lasting seven minutes at 1.45 a. m. The wound, which had closed very perfectly, was reopened, and while it was clean and no discharge could be observed to escape, the convulsions ceased and recovery was rapid, perfect, and without complications.

Chloral and the bromides were used quite freely until the unpleasant symptoms ceased. His right arm by this time was completely paralyzed, but there was no paralysis elsewhere. Complete paralysis lasted only about two days, when improvement commenced, and he enjoyed quite complete use of the extremity in three weeks. He was never unconscious except when in convulsions. He sat up more or less every day; his appetite was good, bowels regular, urine very good. During the period of severe convulsions his speech was thickened and slow. He resumed his work some six or seven weeks following the accident.

Dr. G. W. Jenkins, of Kilbourn City, read a paper on "Puerperal Eclampsia."

Whatever the pathology, remote, or exciting causes, the most important subject to be considered is the treatment, which consists of two classes, *preventive* and *curative*, and the curative into *medicinal* and *obstetrical*. It was his uniform practice to bleed patients after having thouroughly considered the case, and ascertained the general condition of plethora, and the dangers to be avoided by a timely and judicious bleeding, diminish directly the amount of blood, relieving blood pressure, and congestion of the whole system. During an experience and practice of over 35 years he had about 20 cases and had never lost one.

After bleeding, if the convulsions continue, he puts patients upon chloroform inhalations, relieve the distended bladder, unload the bowels by means of free irrigation, and proceed to empty the uterus by first gradually dilating the uterine canal until the hand can enter the uterus, turn, and deliver. He does not wait, but empties the uterus as soon as possible. If convulsions continue after the uterus is empty, he used hypodermic injections of morphine, chloral per rectum, hydragogue cathartics, and attempted to unload the kidneys by means of diuretics.

Dr. H. F. Sercombe, of Milwaukee, said that she had had quite an extensive experience in private practice and otherwise. While in the lying-in hospital in Vienna she had occasion to witness a great many cases. The patients were usually brought to the hospital in an eclamptic condition, and on admission the assistant physician would secure a large bath-tub, fill it as full as possible, without letting the water run over, with water as warm as the patient could bear. It made no difference as to how far pregnancy was advanced, whether

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five, six, seven, or eight months. Patients were immersed in this warm water and kept there for thirty to forty minutes. He would then have them wound in heavy blankets, so as to produce perspiration as freely as possible. If the convulsions continued while the patients were being immersed in the bath, he administered chloroform judiciously, and after taking the patient from the bath he would give an enema of chloral hydrate, twenty to forty grains, made into a solution with mucilage. This was the assistant's general treatment. He did not try to interfere with gestation at any time, except where labor was retarded in its progress. There were very rarely more than about six convulsive attacks after the patient was brought into the hospital, and of the twenty-four cases she saw there were only two deaths

Dr. L. H. Hayman, of Boscobel, said: There was one remedy which was suggested to him by Dr. Miller, of Chicago. One of the most valuable remedies, where there is a nervous condition, with headache, and albumen in the urine, was chlorate of potash, tincture of iron, and morphine, given three or four times a day. He found in many cases in which he had administered this remedy it proved very valuable. Some of the cases which were very troublesome, the patients suffering a great deal of pain, irritation, and pressure in the abdominal wall, were relieved by this treatment.

Dr. J. G. Meachem, sr., of Racine, had practiced medicine forty-five years; during that time he had seen a very large number of cases of eclampsia. He had tried, and seen tried, various forms of treatment, and was satisfied that there was no remedy to be compared with blood-letting. He could not recall a single case that had occurred within his memory that recovered where blood-letting was not resorted to.

OFFICERS FOR 1889.

President—Dr. J. R. Barnett, of Neenah.

First Vice-President—Dr. G. D. Ladd, of Milwaukee.

Second Vice-President—Dr. H. F. Sercombe, of Milwaukee.

Permanent Secretary—Dr. J. T. Reeve, of Appleton.

Assistant Secretary—Dr. J. R. McDill, of Milwaukee.

Next place of meeting, Milwaukee.

THE MICHIGAN STATE MEDICAL SOCIETY.

TWENTY-THIRD ANNUAL MEETING AT DETROIT.

The address of welcome was delivered by John Pridgeon, mayor of the city.

Applications for membership were then read by the Secretary, and were all referred to the appropriate committee.

H. O. Walker, M. D., Chairman of the Executive Committee, reported the programme of the meeting, which was accepted.

Dr. George Duffield, Chairman of the Publication Committee, reported that 810 copies of the transactions of the last meeting were prepared, and 500 mailed, at an average cost of seven cents a volume. In consequence of the delay occasioned by the tardy receipt of papers, the committee recommended the adoption of the following:

Resolved, That papers not sent to the Publication Committee, complete, two weeks after adjournment shall not be included in the society's transactions.

On motion, all portions of the report referring to money matters were referred to the Finance Committee, except a provision for binding the report, which was laid on the table for one year. The rest of the report, including the resolution, was accepted and adopted.

W. J. McHensh, M. D.. Chairman of the Committee on Necrology, reported the deaths of Drs. A. B. Palmer and E. S. Dunster, of the University of Michigan, and Douglas A. Joy, of Marshall. He then read the memorial of Dr. Joy, and Dr Conrad George, of the University of Michigan,

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read the memorials of the two professors in the State University.

Dr. George Duffield, Secretary of the society, submitted his report, which commenced with a comparison of the status of the society at the last meeting held at Detroit (nine years ago) and at present. At the former meeting there was a membership of 168, of whom only seventy-five were present at the meeting, while now the membership is 275, of whom a very large proportion will be present; still the membership is small compared with the number of practitioners in the State, and earnest efforts have been made and are still making to induce members of the local societies to unite with the State organization.

A proposed amendment to the constitution, offered at a previous meeting, making all active members of the association removing from its jurisdiction eligible to corresponding membership, was put upon its passage and unanimously adopted.

H. B. Hemenway, M. D., Treasurer, reported as his gross receipts $920.26 and disbursements $848.32, leaving a balance of $71.94, but as $100 has been voted and not paid to the "Rush Memorial Fund" there is an actual deficit of $28.06.

The following was accepted us a substitute for sec. 3 article 3 of the by-laws:

"Membership dues shall be $2 per annum, and payable annually. The failure of any member to pay such dues for two successive years shall be reported by the Secretary of the society, and thereupon such delinquent shall be declared, by the presiding officer, suspended from all the rights and privileges of membership therein, except that of attendance upon its sessions; and a failure for five successive years to pay such dues, shall also be, in like manner reported, and the membership of such delinquent shall be declared forfeited and lost: Provided, that one so suspended may be restored to the full privileges of membership by a vote of the society upon the payment by him to the Secretary of the full amount of his unpaid dues.

"All applicants for membership who have forfeited their membership by the non-payment of dues, shall be required to state in their application the fact of such forfeiture."

The President appointed the following nominating committee: Drs. Hitchcock, Kalamazoo; Hoyt West, Detroit; Breakey, Ann Arbor; Raynale, Brighton, and Langlois, of Wyandotte.

Dr. Wade, of Holly, made a humorous speech, protesting against the meetings of sections and against the reading of long papers that interested nobody. He did not come for instructions, but for pleasure, and he wished to see more of the social and less of the scientific element cultivated.

AFTERNOON SESSION.

In the Section on Practice of Medicine, of which A. W. Alvord, of Battle Creek, is chairman, the first paper on the programme, "Is Disease an Entity?" by Dr. C. H. Stowell, of Ann Arbor, was omitted on account of the absence of Dr. Stowell. The papers read and discussed were: "True Principles of House Drainage," Dr. S. P. Duffield; "Undrained Lands Predispose to Phthisis Pulmonalis," Dr. H. F. Lyster; "Tuberculosis, Etiology and Frequency," Dr. J. Flinterman; "The Pathology of Acute Miliary Tuberculosis," Dr Horace Gibbes.

The following papers were presented in the Section on Surgery, Dr. Donald Maclean, Detroit, chairman: "Retention of the Urine Relieved by Supra-pubic Paracentesis of the bladder," Dr. Charles F. Southworth; "A Demonstration in Abdominal Surgery," Dr. Hal. C. Wyman; "A Case of Splenectomy with Subsequent Liberation of the Ligature through the Air Passages," Dr. T. A. McGraw; "Some Eye Affections of the Veneral Diseases," Dr. Flemming Carrow, Bay City.

The Section on Obstetrics and Gynæcology, Dr. George E. Ranney, of Lansing, chairman, listened to and discussed the following papers: "An Address on Obstet-

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rics and Gynæcology," Dr. G. E. Ranney; "Curability of Tumors of the Womb Without Severe Surgical Treatment," Dr. C. H. Leonard; "Puerperal Septicæmia," Dr. Charles H. Baker; "Uterine Flexions as a Cause of Anomalous Symptoms in Distant Organs," Dr. W. W. Elmer; "The Therapeutical use of the Pessary," Dr. H. J. Chadwick, and "Experimental Researches Respecting the Influence of Dress as a Cause of Pelvic Disorders in Women," Dr. J. H. Kellogg.

In the evening Dr. McGraw delivered an address at the opera house. One of the first sentences of his address, in speaking of the medical profession, was: "We are too much occupied with our own influence on people to pay sufficient attention to the influence of people on ourselves." He proceeded to show that it is impracticable, owing to national peculiarities, for foreign and more mature systems of medical education to be adopted in American schools. The English mind was too intensely practical; the German too philosophical. American medical and surgical schools are not put in a state of efficiency satisfactory to medical men. The responsibility of their low standard and the lack of equipment in hospitals should be assumed as much by the people as by the medical profession. He denounced the custom of permitting students to begin study in private offices under preceptors who seldom pay any attention to their needs and less to their fitness to practice. The excellence of the German schools was universally admitted, but the American system of training and education, though comparatively in its youth, produces in time results of which the profession and people may be proud. The American schools make their instruction eminently practical.

Dr. George K. Johnson, of Grand Rapids, followed with the annual address on the practice of medicine, his subject being "The Natural History of Disease the Basis of Rational and Scientific Practice."

He set forth that the vast majority of diseases end in return to health of those afflicted; that most sick people will get well when left to the curative influences of nature. He held that drug medication was too excessive and indiscriminate; that with few exceptions, the knowledge of drug action did not warrant prodigality in usage. The present drift was in the direction of conservatism in the use of drugs, although there was a constant flood of therapeutic novelties. The only course for the true physician was to take the law from science only.

The closing feature of the programme was the annual address on surgery by Dr. Geo. E. Frothingham, of Ann Arbor, his subject being "Surgery as an Art and a Science." In a scholarly manner he traced the progress of surgery from the early days when it was consigned to the hands of barbers up to the present time, showing its mighty advances. Rome had gone 500 years without surgery, and then assigned the work to slaves and aliens. Now surgeons occupy the front rank as regards science and learning. With the advance in scientific surgery, operations were much fewer and while in early days fatalities were frequent, the reverse was now the case. The doctor's address was listened to with great nterest, and frequently applauded.

At the close of the exercises the members, at the residence of Dr. T. A. McGraw, were tendered a reception.

SECOND DAY.

The following officers of the association were elected:

President—Dr. S. S. French, Battle Creek.

First Vice-President—Dr. Charles N. Lewis, Jackson.

Second Vice-President—Dr. E. B. Ward, Laingsburg.

Third Vice-President—Dr. Simeon Belknap, Niles.

Secretary—Dr. George Duffield, Detroit.

Treasurer—Dr. H. B. Hemenway, Kalamazoo.

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Members of the Judicial Council—Drs. William Brodie, Detroit; F. K. Owen, Ypsilanti, and J. H. Bennett, Coldwater.

The society will meet at Kalamazoo, in 1889.

NATIONAL ASSOCIATION OF RAILWAY SURGEONS.

The committee for making arrangements for a national meeting of railway surgeons met in the city of Fort Wayne, Indiana, on the 15th of May, 1888, and decided to hold the preliminary meeting in Chicago on the 28th of June at 9.30 a. m. Accordingly, the Association convened on the above day, and was called to order by the chairman of the committee, Dr. C. B. Stemen, of Fort Wayne, who briefly stated that the meeting was for permanent organization. The objects of the Association were to bring the surgeons of the different railroads together annually to develop this special and rapidly-growing branch of surgery; to report cases coming under their observation; to relate their experiences; to exchange views, and to discuss the best methods in the treatment of railway accidents and injuries. The meeting was large and enthusiastic, many distinguished railroad surgeons of the United States being present. Sixty-three railroads were represented. The Association starts out with a membership of six hundred and promises to be an active organization.

The morning session was devoted principally to the election of officers.

In the afternoon the following papers were read: Report of two cases of Successful Triple Amputation for Railway Injuries, by Dr. J. B. Luckie, Birmingham, Alabama.

Synchronous Amputation, by Dr. N. C. Lynd, New York.

Report of a case of Simultaneous Triple Amputation with Recovery, by Dr. A. J. Banker, Columbus, Indiana.

First Care and Treatment of Railway Injuries, by Dr. H. H. Middlecamp, Warrenton, Missouri.

Relations of Railway Surgeons and Members of the Bar, Dr. La Grange Severance, Huntington, Indiana.

External Wounds Communicating with Fractures of Bones, by Dr. J. R. Williams, White Pigeon, Michigan.

Report of a Case, by Dr. William C. Caldwell, Fremont, Ohio.

Treatment of Compound Fractures, by Dr. W. L. Buckner, Youngstown, Ohio.

Brakemen's Injured Fingers, by Dr. J. A. Jackson, Madison, Wisconsin.

Fracture of the Spine, with reports of two cases, by Dr. W. C. Henry, Aurora, Indiana.

A Few Points in Railway Surgery, by Dr. W. B. Outten, St. Louis, Missouri.

Violent Injuries of the Pelvic Bones and Pelvic Viscera, by Dr. W. A. McCandless, St. Louis, Missouri.

Dr. OUTTEN said that out of 103 railway injuries caused by the passage of locomotives and cars over the parts attended by him, involving the superior and inferior extremities, excluding injuries of the hands or feet, more than one-third died from shock, and one-tenth died from shock without operative interference,

Dr. J. B. MURDOCK, of Pittsburgh, Pennsylvania, said he had been deeply interested in Dr. Outten's paper, and in discussing railway injuries the important question is whether surgeons should adopt primary amputation, or resort to secondary amputation. He maintained that intermediate amputation was unsafe and dangerous. Military and railway surgeons know that the mortality in primary amputation is much less than in secondary amputation. After the patient had sufficiently reacted from the shock, it was his rule to perform amputation, and the sooner the better, and the greater were the chances for recovery of the patient after the operation.

Dr. H. J. BENNET, of Ohio, had practiced his profession for twenty-five years, and had treated a large number of railway accidents and injuries, but had never used carbolic acid, bichloride of mercury, nor

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even a drainage-tube, for in so doing he considered he added to the wound a material that would produce inflammation. He used nothing but pure lint, a plain, dry roller, etc.

Dr. C. B. STEMEN, of Fort Wayne, entered his protest against those who are opposed to antiseptic surgery. Sir Joseph Lister in his teachings has been the greatest benefactor of the present age in advocating antisepsis. Although Lawson Tait, and Bantock may directly ignore it, yet a visit to their operating rooms will convince any physician that they practice it. A person has to subscribe to an oath that he has not been in a dissecting room or attending a person with an infectious disease prior to being admitted to witness their operations.

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FOREIGN MEDICAL SOCIETIES.

THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

ANIMAL TUBERCULOSIS IN RELATION TO CONSUMPTION IN MAN.

Thomas Walley, M. R. C. V. S., of the Edinburgh Veterinary College, said: In spite of all the attempts which have been made in the past to minimize the importance of animal consumption in its relation to this fell destroyer of the human race, the fact still remains that in every essential particular the tuberculosis of man and the tuberculosis of animals are identical. The scourge of the bovine species is the curse of the human, as it is also the pest of the feathered tribes.

A few years ago, comparatively, animal tuberculosis received but a scanty share of attention from the members of the veterinary profession in this country, and few in its ranks associated the malady with that most fatal and most intractable of all the diseases to which human flesh is heir; and, whether from the supineness exhibited by the members of the sister profession on this subject, or from the growing enlightenment of the members of the veterinary profession, I cannot say, but assuredly the latter have within the last twenty years taken the most prominent part in bringing the subject of tuberculosis under review.

In glancing for a brief space at the history of the disease, I need scarcely remind you, I think, of the fact that it is almost co-existent with the science of medicine; and probably, if we could look into the ages that were, we should find that its genesis was coeval with that of man.

If it is a fact that consumption in man has always held a prominent place in the literature of the medical profession since medicine became an art, it is equally a fact that the disease has been recognized by various cognomens among veterinarians for genera-

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tions and in different countries as being common to animals.

But while English veterinary practitioners and others spoke glibly of "grapes" in cows, or, referring to a well-known symptom (diarrhœa) as "shooters," and to another symptom (sub-maxillary œdema) as "wattles," and while the characteristic growths of scrofula and tubercle were in many of the northern counties of England and in some of the Scottish counties designated and known as "clyers" and "wens"; and further, while the disease was known as "angleberries," and the affected animals themselves spoken of as "piners" or "wasters," still no systematic inquiry into its nature was made by those responsible for veterinary teaching until within the last quarter of a century. In proof of this I may quote the fact that during his admirable course of lectures—the most complete of any that were delivered at that time—Professor Simonds, of the London Veterinary College, did not once refer to the disease during my pupilage in the years 1861–3; and in 1847 there occurs in the professional organ of that day, the *Veterinary Record*, the following remarkable statements, in connection with some comments on what was evidently a case of nodular tuberculosis, which had been brought to the notice of the editor by a practitioner, Mr. W. Cox, of Ashbourne. The statements are: "The tumors attached to the viscera of the thorax of a cow are similar to some we have occasionally met with"; and, "On this subject our English veterinary authors are silent, and we believe the above to be the only case of the kind recorded."

In 1872 I had the privilege of reading a paper on this subject at a meeting of the West of Scotland Veterinary Medical Association, which was held in Glasgow; and again, in 1879, I included the disease in the book entitled *The Four Bovine Scourges*. On various occasions since the issue of that book I have brought the matter before the profession. During the period mentioned, other members of my profession have written upon and publicly noticed this subject, and for some years there has been, practically, unanimity among us as to the danger of transmission of the affection from animals to man. On the Continent the dangerous nature of tuberculosis was recognized at a very much earlier period than here, and we are told (*vide* Lydtin, Fleming, and Van Hertsen, on "The Influence of Heredity and Contagion in the Propagation of Tuberculosis") that in the Mosaic laws special provision was made for the condemnation of the flesh of animals suffering in the advanced stages of phthisis.

The promulgation of the opinion by Laennec that the existence of tubercles was always associated with a caseous centre in some organ or other of the body, was a vast stride towards the realization of its exact causal relationship. Then came the declarations of Villemin, founded on extended experimental inquiry as to its infectious character; and following on this, I think I am correct in saying, that the doubt cast upon the nature of the disease, in animals at least, by the use of the term lympho-sarcoma by Virchow, was the means of temporarily arresting the progress of the realization of an exact knowledge of its pathology, and, I may say also, of checking the realization of the intimate relationship existing between the tuberculosis of man and animals.

In Cohnheim's celebrated dictum, "That that which is of tubercular origin can alone originate tubercle," we had sounded the key-note of a great discovery; but it again was obscured to some extent by the declaration of Sanderson and others, that tuberculosis could be produced by inoculation with many and diversified pathological products. It remained for Koch to place the crown upon the edifice of our knowledge as to the specific nature of tuberculosis, though even his grand work had been foreshadowed to some extent by other inquirers. So far as I am personally concerned, I arrived at the conclusion at an early period of my professional career, *that tuberculosis was a specific disease;* and

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in the essay prepared in 1872 occurs the following remark: "Tubercle is as much a specific disease as is syphilis, or any other affection depending for its continuance (existence) in the system upon a morbid poison or principle." Again, in *The Four Bovine Scourges*, p. 150, "In whatever way I consider the character of tubercle as tubercle. my mind always reverts to the same conclusion, viz., that tubercle is as much a specific disease, whether inherited or acquired, as glanders, syphilis, or any other affection of the kind with which we are acquainted."

Long before Koch's discovery, or rather his recognition of the tubercle bacillus, veterinary surgeons were acquainted with the fact that the tubercular nodules, so universally met with in the lungs of sheep, were simply a pathological expression of the effects of a parasitical irritant in the shape of the embryo of the Strongylus filaria; and it would have only been a logical sequence had some one who had carefully considered the matter arrived at the conclusion that the cause of tubercle as tubercle was an irritant; that that irritant was an organized entity in the shape of a bacillus, or that the irritant had some connection with such an organism—a secretion or product thereof, perhaps; that the irritation so produced established a localized exudative inflammation followed by a formative process, which, however, only attained to a certain degree of perfection; and, in consequence of the continued irritation and of the imperfect nature of the cell structures produced, that it was followed by a retrograde change which culminated in the recognizable caseous and calcareous products with which we are all so familiar.

Not only would such a line of reasoning have led us to the discovery of the true nature of tuberculosis, but it would have shed a flood of light upon much that was obscure in reference to the nature of glanders, actinomycosis, and other forms of that group of diseases now classified as the infective granulomata. Moreover, it would have been the means of leading us to discard, at an earlier period than we did, the, to us, distinctive terms "gray," "yellow," and "infiltrated" tubercle—terms which of themselves signified only the features presented at different stages of its growth of one and the same product. And even if it had not justified us in preserving a strict adherence to the expression used by myself in *The Four Bovine Scourges* to the effect "that tubercle is a visible local manifestation of a constitutional diathesis (scrofulosis)," it would at least have led to the iquiry, What is the essence of scrofula?

In order that the members of this society may the more readily realize the intimate connection which exists between animal and human tuberculosis, it is advisable that I should consider at the outset some questions of a general nature, such as the species of animals most liable to tubercle, the means by which it is propagated, the organs affected, its course, its effects on the system, its macroscopical characters, and its complications.

(1.) *Species of Animals Affected.*—It is universally acknowledged that the members of the bovine species are pre-eminently the hosts of tubercle. In them it has been thought to be indigenous, though why bovines should be more predisposed than other animals is not easy of explanation, except perhaps the fact that their complicated stomach may afford a resting place for the bacilli, or that there may be some element in the bovine constitution favorable to their support—in other words, that the doctrine of *receptivity* applies in this case more powerfully than in that of animals of other species. Looking at the fact that the sheep bites more closely to the ground than does the ox we should be inclined to think that ovines stood a greater risk of ingesting the viruliferous principle with their food than do bovines, but it is a most remarkable fact that the former are seldom found to be the subject of naturally contracted or spontaneous tuberculosis. Indeed, I may say that of all the domesticated

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or semi-domesticated animals whose flesh is used for human food the sheep stands out from the group as the one least liable to tubercle; and this is all the more remarkable seeing that this animal is so intimately associated in many cases with cattle and with rabbits, a creature pronouncedly predisposed to, and very largely the subject of, tuberculosis.

Koch's discovery of the tubercular bacillus has, as I have before remarked, given us a more accurate basis upon which to found a diagnosis; and several Continental pathologists, notably Johne, have within the past few years discovered its existence in the lesions of so-called lymphadenoma; while, during the past year my colleague, Professor M'Fadyean, demonstrated the bacilli in what appeared to be lymphadenomatous nodules in the spleen of the horse.

Of poultry, tuberculosis claims a holocaust of victims, and macroscopically it presents in these animals some remakable divergences from the recognized characters of tubercular products in the ox and in man. My first intimate acquaintance with avian tuberculosis was about the year 1865; but several years prior to that date I had seen cases which to the naked eye presented features closely analogous to the disease, and that more particularly in the rook.

Amongst the semi-domesticated amimals the rabbit takes the foremost place as the host of tuberculosis.

As a boy I was accustomed to see myriads of tubercular nodules in the livers of rabbits, and so much was I impressed by the fact, that in the essay already alluded to as having been read by me in 1872, I suggested that there was a possibility of contamination of pastures by the fæcal matter of these animals. Guinea-pigs are especially predisposed to tuberculosis—at least by artificial infection—and the same may be said of monkeys, in which animals the lesions approximate perhaps more closely to those seen in the human subject than they do in any other animal.

The propagation of tuberculosis is effected in a variety of ways—by congenital and hereditary transmission, by ingestion of contaminated foods or water, *i. e.*, naturally or experimentally; by natural or experimental inhalation, by accidental and intentional inoculation, and by intravenous injection.

The possibility of congenital transmission of tuberculosis occurring was for a long period denied, but there are those amongst human pathologists who believe in such a possibility, and who assert that it does occur, while veterinary pathologists have at different times adduced practical facts in proof of such a possibility. It has not as yet fallen to my lot to witness congenital tuberculosis, but I have seen it in animals at such an early age as to lead me, perforce, to the conclusion that it must have had an *intra-uterine* origin.

Mr. M'Gillivray, of Banff, has put on record evidences of the fact that congenital transmission takes place, and some six years ago I received a communication from a late pupil of my own, Mr. Frank Ashley, giving me details of some cases in a valuable herd of shorthorns, which were under the care of Mr. Carter, of Guildford, and in which young calves developed symptoms of tubercular meningitis and pulmonary tuberculosis within a few days after birth. Why doubt as to the probability of such transmission taking place should be entertained in view of our knowledge of the existence of tubercular orchitis and oöphoritis in animals, and of the existence of bacilli in the blood, with the ready transmission of the anthrax bacillus (a much larger bacillus than that of tubercle) from the mother to the fœtus, I cannot understand. Several years ago a lady of my acquaintance purchased a setting of eggs from a poultry-yard which I knew was infected, and shortly after the birth of the chickens they showed evidence of the existence of the disease, and very quickly the other poultry on the premises became affected.

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As to hereditary predisposition, the fashion at the present day in human medicine seems to be to explain the fact by assuming that the systems of certain individuals—on account of family peculiarities—offer a more favorable soil for the development of the bacillus than do the systems of others. This hypothesis, to my mind, is a convenient way of explaining an unpleasant phenomenon, viz., that family after family is swept off the face of the earth by this fell malady; but I confess I cannot understand why such a theory should be accepted in face of the many and palpable proofs to the contrary one meets with in one's intercourse with individual families.

I am well aware that the question—a most difficult one to answer—may be asked, What becomes of the virus during the years that intervene between the birth of individuals and the development of the visible manifestations of tubercular lesions in their systems? You acknowledge the possibility of syphilitic lesions being developed in children in whose systems a hereditary taint exists; is the causal entity so widely different in these diseases as to preclude the possibility of hereditary transmission in the one if you acknowledge that it can take place in the other? I grant it is difficult to understand in what particular tissue or organ the bacilli or their spores reside in a quiescent manner for prolonged periods, but when we observe the same process going on in the case of the virus of rabies, the difficulty is not so great. In the calf I have seen scrofulous lesions in the thymus gland, and scrofulous processes are common in the lymphatic glands of these animals as they are in human juveniles. May not the bacilli or their spores be imprisoned in the structure of these glands, and retain their vitality and power of reproduction until some circumstance favorable to their admission to the general system arises?

Propagation by ingestion has for long, thanks to the united labors of human and veterinary pathologists, been an established fact. Not only has the disease been propagated by the ingestion of its products, but also by the ingestion of the secretions of affected animals; and not only this, but it has been shown that a tolerably high degree of heat does not always insure the inocuity of such an important animal product as milk. This method of propagation, it has been abundantly proved, is effected between animals of different species, as from the cow to the pig, and from the former animal to the common fowl; and in addition to this, we have recently had several strong statements made as to the probability of human infection by the ingestion of improperly cooked animal food, especially that of poultry. I have already alluded to the suggestion thrown out by myself in 1872, to the effect that cattle may become infected through the medium of pastures contaminated by the fæces of tuberculous rabbits; and an observation has been made by several veterinary surgeons and by stock-owners to the effect that every animal confined in a particular and contaminated stall in particular byres became sooner or later a victim to tuberculosis. By some it has been thought that infection takes place through the medium of the lungs in these cases, but the majority of observers agree in attributing it to the ingestion, by licking (a habit common to cattle) of the dried sputa from the manger or other surroundings of infected occupants of the stalls, or by the ingestion of contaminated foods. Reference to this matter leads me to offer a remark on a very misleading statement made by human pathologists, and made by one medical man very recently (Dr. Handford in the *Lancet*), to the effect that in pulmonary phthisis of animals there is no sputum. As I pointed out in a subsequent issue of the *Lancet*, this statement is one of many exposing lamentable ignorance on the part of many medical men as to the clinical phenomena of disease in animals.

Granted that animals do not eject sputa at will, and in such unnecessary profusion

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as is seen too often to be the case in man, the ox and the dog do on occasion readily expectorate; and independently of this, the materials which in man would be got rid of by expectoration are passed out of the bronchial tubes by the nose, or after being coughed up into the fauces are swallowed, and ultimately passed out with the fæces to lie upon and contaminate the food, the litter, or, in the case of cattle, the pastures.

In the matter of the propagation of tubercle by the medium of the drinking water, if we acknowledge that it may be propagated by the ingestion of solid, there need be little difficulty in accepting the dictum that it may be propagated also through the medium of fluid ingesta.

At a meeting of the National Veterinary Association held in London in 1883, Mr. Olver, F. R. C. V. S., of Tamworth, expressed an opinion to the effect that a number of the cattle in his neighborhood contracted tubercle by the ingestion of sewage matter from the town.

I have myself seen one instance in which the circumstances connected with the death of a number of young cattle pointed to infection by contamination of the drinking water with sewage; and in March, 1886, I received from Mr. Menzies, M. R. C.V. S., of St. Austells, sections of the lungs of an ox affected with tuberculosis, and at the same time a communication from that gentleman in which he stated that not only the feeding bullocks, but the milch cows also on a particular farm in his neighborhood were found on examination to be the subjects of pulmonary tuberculosis; the water supply in this case was constantly contaminated by the liquid filth from the farm-yard and other places. Independently of contamination by sewage matter, both drinking water and food may become fouled by the urine and the uterine discharges of infected animals.

Propagation by inhalation has passed out of the region of speculation; it is now shown that, experimently at least, its accomplishment is certain. I do not myself see that there need be any question as to such a probability, seeing that the expired air from the lungs of tuberculous animals as well as from the lungs of man must often be laden with bacilli or their spores from the softened products of broncho-pneumonic vomicæ; but independently of this, there can be but little doubt that particles of dried sputa and other contaminated animal products, are liberated by friction and other forces into the atmosphere and become inhaled by animals.

Infection by inoculation of various products from the bodies of infected into those of healthy animals has been abundantly proved by numerous experimenters, more especially since the publication of the result of Villemin's labors; and the same may be said of subcutaneous injections, injections into cavities, and intra-venous injections; tubercular products in all stages of development and retrogression, the juice of the muscles, milk, urine, saliva, and blood have each and all been used in the successful transmission of the disease; and one experimenter (Toussaint) tells us he has succeeded in transmitting it by using the fluid developed in the vesicles of vaccinated tuberculous calves.

Probably there is no more interesting or instructive subject in connection with the malady under consideration than the transmission, re-transmission, and inter-transmission of the malady by the means above noticed. From man to nearly every species of animal, from one animal to another of the same species, and from animals of one species to others very differently constituted, has the interchange been successfully carried out; and if the resulting lesions have not always borne an absolute resemblance to their prototypes, they in this respect only stand on the same level as do the remarkable divergences in the lineaments of the countenances of closely related men and women.

The most important part, however, of this branch of experimental inquiry seems

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to me to lie in the probability or otherwise of the secretions from organs (healthy in themselves) becoming contaminated by the virus in the case of animals suffering from tubercular disease in other organs of the body. When general, *i. e.*, blood infection has taken place one can see that there exists more than a probability that the secretions generally will become contaminated —though this is, in my opinion at least, by no means necessary. Saliva is sometimes infective, but I have yet to see the first case of tubercular disease of any of the salivary glands. Milk is frequently infective, but I entertain (very strongly) the impression that it only becomes so when the udder is the seat of tuberculous lesions; but to this question I shall revert hereafter.

Organs and Structures affected in Spontaneous Tubercle.—In the ox the lungs, the liver, and the serous membranes are most largely the seat of tubercular lesions, and in reference to the abdominal and thoracic serosæ, it is thought that they are sometimes primarily affected; but I think if a careful search were made some pre-existing visceral lymphadenous focus would be found.

Meningeal tuberculosis (either cerebral or spinal) is, in my opinion, always secondary in cattle, though there are some authorities who hold that it may be produced by inhalation via the nasal chambers and the ethmoidal cells.

While allowing that serous membranes become involved by continuity or contiguity, it is to me a remarkable fact that there seems to be but little or no tendency to extension therefrom to invested organs or *vice versa*. Pounds of tubercular products are formed in and upon the peri- and the epi- cardium, upon the pleura and upon the peritoneum, without a trace thereof existing in the organs they invest; and though I do not deny that eccentric extension may take place as from the bowels, liver, or uterus, to the peritoneum, or from the lungs to the pleuræ, I have no hesitation in asserting that this method of extension is, in animals at least, extremely rare. I have seen cases of cerebral with meningeal, and of spinal with meningeal tuberculosis, but it would be difficult to assign the order of precedence in either case.

Extension from the parietes or the parenchyma of organs to mucous membranes is very common. Thus we see bronchial secondarily to pulmonary tuberculosis; but curiously enough, I have never yet seen hepatic lesions involving the mucous lining of the biliary canals, though the reverse holds good in the case of the udder and the lacteal and galactopherous sinuses.

Extension to arteries from the surrounding structures is probably never seen.

Extension to veins takes place both in the case of the pulmonary and hepatic.

Of the different glands of the body the lymphatics, especially in the ox and pig, hold pre-eminence in the frequency with which they are the seat of tuberculous lesions, and particularly does this apply to the bronchial and mediastinal groups.

The mammary glands, both of the cow and of the sow, are frequently the seat of tuberculosis, and while in the main the lesions are confined to the acini, irruption on the mucous membrane is of tolerably frequent occurrence.

Of the blood glands it may be said that while the thymus is occasionally affected, the thyroid bodies are seldom, if ever, involved; and it is a remarkable fact that the spleen is, in the ox, but very rarely the seat of tuberculous lesions, though it is more commonly affected in the pig, and, as before stated, some of the nodules we used to consider as a part of lymphadenoma in the spleen of the horse are of tubercular origin, and probably this is true also of the spleen of the dog.

Tubercular orchitis is frequently met with in the bull and in the boar, though I have not often seen it in birds. The testicles of the ox and of the boar sometimes attain an enormous size.

Tubercular oöphoritis is of common oc-

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currence in cows; it is a frequent cause of nymphomania in these animals, and cows so afflicted are universally known as "bullers."

To tubercular metritis I have already alluded, and have remarked that the lesions seem most largely to have their origin in the sub-mucosa in which we sometimes find comparatively large cavities containing caseous matter or pus. Localization of the lesions in this organ is a frequent cause of abortion in cows, while involvement of the cervix uteri produces one form of scirrhous os.

Tubercular vaginitis is only very exceptionally seen; indeed I may say I have only met with one good instance of the lesion here.

Tubercular nephritis is also, comparatively speaking, common in cattle, the organs sometimes attaining an enormous size. Tubercular cystitis is not often seen, and when it does exist the lesion is usually localized in the cervix, while tubercular urethritis is still more rare.

Passing to the alimentary canal, we find that spontaneous tuberculosis of the mouth, the tongue, the fauces, the pharynx, and œsophagus is extremely rare, except in young calves, in which it can be readily induced, at least in the mouth, fauces, and pharynx, by the ingestion of infective milk. In the ox the three first compartments of the stomach are never affected, and the true stomach but rarely. In the stomach of the pig it is more frequently seen, and also in the crop of the fowl. The small bowels of the ox and of the pig are sometimes the seat of tubercular lesions, the large rarely; but intestinal lesions are very common in poultry and in birds, though their character differs materially from that of similar lesions in the bowels of other animals.

In the respiratory tract we find that the nasal mucous membrane and the chambers are sometimes the seat of tuberculosis in the ox. While in poultry the nostril is one of the most common sites—and the yellow, croupous-like exudate, so characteristic of the affection, is as also in the case of the mouth, pharynx, conjunctiva, and even the external aural canal, frequently confounded with and spoken of as diphtheria and croup.

In the larynx not only do we see the development of large tuberculous tumors, which are occasionally pedunculated, but we frequently see distinct ulcerations and vegetations, though one medical pathologist has gone so far as to claim that the absence of laryngeal, tracheal, and bronchial ulceration in animals is one of the characteristic differences between animal and human tuberculosis. Undoubtedly bronchial and tracheal lesions, especially ulceration, are in most cases secondary to pulmonary. They are, however, occasionally seen independently of such lesions.

In the lungs, the tubercular processes resemble in their distribution and in their characters those with which you are all familiar as occurring in the lungs of the human subject; it is sufficient for me here to say that there is not one single lesion discoverable in the lungs of man that has not its parallel in these organs in animals.

The structure of the heart is marvelously exempted from tubercular lesions, and while I have occasionally seen evidence of circumscribed interstitial lesions, I have only once seen the cardiac muscle the seat of tubercle, and even in that case the lesions were not very characteristic.

Tubercular myositis, as affecting the voluntary muscles and as an independent lesion, is of extreme rarity.

Tubercular ostitis is of comparative frequency, as is also arthritis, but the latter is in the majority of instances, secondary to the former.

Cutaneous and subcutaneous lesions are rare in mammals, except in association with the softening processes which go on in underlying organs, such as lymphatic glands, bones, and joints.

The comb and wattles of the cock, and now and then of the hen, attain an enormous size, become hard and unyielding,

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and on section masses of the yellow exudate already alluded to are exposed. A similar condition occurs in the foot, producing deformity of that organ, and occasionally being associated with the formation of superficial ulcers on the plantar surface, through which the softened products are discharged.

In practice, we frequently find that in pregnant cows a halt in the onward march of the disease is called, but its progress again proceeds with redoubled speed after the act of parturition; and so, too, after æstral excitement has subsided.

When acute processes are in the ascendency, the febrile state becomes marked, a temperature of 105°–107°, or even 108° Fahr., being frequently reached and maintained for days or even weeks; and as a result of this, rapid emaciation sets in and there is marked interference with the normal functions, with the exception (in many instances) of one, and that unfortunately the most important, viz., lactation.

Lastly, we not infrequently find that these acute symptoms subside, and the animal is apparently restored to perfect health and may become extremely fat. Subsequent investigation shows that the tubercular processes have been arrested or become obsolete. The clinical phenomena depend upon the organs involved.

In their macroscopical characters the tubercular lesions of the lower animals are in the main the counterpart of those with which you are familiar in man.

Milk is undoubtedly the medium through which transmission is most likely to take place; and judging from the numerous experiments which have been made, both by ingestion and inoculation, there can be little doubt as to the frequency with which it possesses viruliferous properties.

The results obtained by Professor Bang in reference to the action of heat on the bacilli are similar to those obtained by other authorities, and show how little dependence there is to be placed on the supposed disinfective properties of such a degree of heat as most people are likely to apply to milk they are about to use for dietetic purposes.

Professor M'FADYEAN: The proofs of the identity of tuberculosis of man and tuberculosis of the lower animals are overwhelming. I think it may be said to divide itself naturally into—*first*, the experimental evidence; *secondly*, the histological evidence; and, *thirdly*, the evidence relating to the identity of the bacilli which modern methods enable us to discover in all tubercular growths. With reference to the first of these—the experimental evidence—I think that it is absolutely conclusive. There is but one step wanting, and that is simply that nobody has deliberately and of set purpose communicated tuberculosis to human beings by giving them tubercular flesh. With reference to the histological evidence, comparison of the minute structure of bovine tubercle with that found in the human subject certainly of itself would to me almost establish the identity of the two lesions. In particular organs of bovine animals there are types of tubercular structure that one does not often meet with in human organs. That is true principally of the chronic tubercular growth which is found so commonly in connection with the serous membranes of the bovine animals; but in these animals when an acute tuberculosis is set up, then the lesion—as, for example, the structure of the tubercle which is formed in the lung—is absolutely identical with the tubercle which is formed in the human lung. The same applies also to the tuberculosis of horses. I am not sure that an examination of the histology of the so-called tuberculosis of fowls would afford very strong evidence as to the identity of that with human or bovine tuberculosis. All the specimens that I myself possess of avian tuberculosis exhibit very considerable difference—for example, I have not in any of the specimens I have yet examined found giant cells in the lesions. With regard to the identity of

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the bacillus, I believe that the evidence accumulated on that head is sufficient to show that there is no recognizable difference in the characters of the tubercle bacillus when obtained from growths from bovine animals and when obtained from a human being. There is hardly any force at all in the objection which Klein urges regarding the difference of size of the tubercle bacillus as found in man and in animals. Klein himself points out that the bacillus of anthrax exhibits a very considerable difference in size when taken from different animals, and only a few pages further on he cites this difference of size of the tubercle bacillus as being evidence of the non-identity of the tubercle bacillus of men and animals. I think, then, that it must be held that it has already been abundantly proved that tuberculosis of animals and that of the human subject are identical; and it therefore is of the utmost importance to consider what are the dangers and what likelihood there is that tuberculosis of the lower animals may be communicated to human beings. That danger appears to exist, in the first place, in connection with the consumption of tubercular food, and, in the second place, in the consumption of milk from tubercular cows. I have been collecting all the udders I could get. About two years ago I procured a specimen of tuberculosis of the udder of the cow; the animal was in prime condition, and yet almost any section taken from that udder reveals the tubercle bacilli in inconceivable numbers. That cow was giving milk up till the day of slaughter, and it was not killed for disease, but because it was in a condition regarded as prime fat.

Dr. WOODHEAD: In the first place, I should like to say a few words as to the identity of the condition in man and in animals. I know that Klein insisted, as you have already heard, on certain differences between the bacilli as found in man and as found in cattle. Now, in order that I might try to convince myself, I took a series of specimens from human and bovine organs, in which the bacilli were treated in exactly the same way. I examined these specimens carefully, and I then asked several of my friends to examine them, and to tell me, if they possibly could, which was from man and which was from the cow. In almost every case it was found to be absolutely impossible to distinguish between them. Klein says that the bacilli are a third less in bovine tuberculosis than they are in man. Now, I found that it was impossible—even using very high powers—to distinguish the one from the other. There might be slight differences, but equal differences occurred in the same specimen. Then, too, when I was doing this, I also examined for the position of those bacilli, because Klein holds that there is a very distinct difference in the position of the bacilli in bovine and in human tuberculosis. He holds that the majority of bacilli are in the cells in bovine tuberculosis, and that they are between the cells in human tuberculosis. I find that other authorities have taken this up—Dr. Sutton among others, and, of course, Koch, from whom a great part of our information on this subject is derived—and these authorities distinctly say that in both human and bovine tuberculosis, you may find the bacilli both in the cells and in the spaces; and as a matter of fact, that is so. Klein, in a series of experiments reported to the Local Government Board in 1886, gives the action of bacilli taken from a human subject and inoculated into fowls; also taken from a cow and inoculated into fowls and into guinea-pigs; and also from fowls to guinea-pig; and he finds the following state of affairs—that you can inoculate fowls with tubercle taken from a human subject. In the same way you can inoculate from a guinea-pig to a cow, but when you begin to cross these—that is, when you begin to inoculate from a cow to fowls—then your experiments break down. Now, in connection with this, I should like to draw attention

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to one fact. Koch, in his classic experiments brought out this point very strongly —that you can cultivate tubercle bacilli at a temperature of 86° to 105°, but that beyond these limits it is exceedingly difficult to get a growth of tubercle bacilli. Now, this appears a somewhat important fact, when you come to consider the temperature of the animals on which you are experimenting. For instance, one could readily understand that you can modify the virulence, the activity of these bacilli and their power of growth. If you can modify these outside the body by temperature, you can also to a certain extent modify them by the temperature in the animals. I asked Professor M'Fadyean to-day to give me the normal temperature of some of these animals. I took a note at the time. In the cow the temperature is 101° to 102°. In the hen—and this is subject to correction—it is from 104° to 105°. In a calf about 103°; pig, same as cattle; and horse, 101°. Now, it appears that if you could only inoculate fowls with human tuberculosis—and you cannot transmit from the cow to the fowl or (probably) from the fowl to the cow—it would appear that temperature might have a very important effect on the vitality, not perhaps immediately, but on the virulent power of these bacilli. By increasing the temperature of the subject, you might diminish the power of growth and of attacking the tissues possessed by these bacilli. Of course this is only in connection with the experiments carried out, and as a partial explanation at least of what may actually take place. Then as to the transmission of tuberculosis from the bovine subject to the human subject. Principal Walley has already told us that calves are subject to tubercular ulceration of the first parts of the alimentary duct. Now, when Professor M'Fadyean and I were working at this subject, we happened to come across a series of cases in a very localized position. We had to do with a dairy in which we found evidence of tuberculosis in the udders of three cows. These three cows were giving milk, and this milk was going into a large establishment, and it was going into this establishment only. We found that in this establishment the death-rate from phthisis was in one year 40 per cent., and in another, 30 per cent. of the whole deaths. At the same time there was a series of experiments going on which were useful to us, although not so useful to the people who were carrying them on. The pigs were being fed with the milk from these same cattle, and these pigs were—a large number of them—suffering from what was evidently a tubercular condition of the lungs; and we learned that a number of these pigs were killed, and the most beautiful tubercle was found in the lungs, in the pleura, and in one or two instances in the small and large intestines. Now, these pigs were being fed on the milk from this cow-house, whereas other pigs, which otherwise were under the same conditions—the only exception being that they did not get the milk—escaped tuberculosis. These experiments were partly carried on before we went, and were continued after we left, but the pigs had the milk supply cut off simply as the result of our visit; and as a result of this, the pigs brought up in the same place afterwards escaped tuberculosis. It has been mentioned that tubercular cattle do not necessarily give tubercular milk. I think that Professor Bang has modified his position very greatly since the Copenhagen Congress, because at that time he held very strongly that it was not necessary that the udders should be tuberculous at all in order that bacilli should be found in the milk. In almost all these experiments, where tubercular infection has been brought about through tubercular milk, it has been found that the udder has been affected, whereas in those cases where the results have been negative, irregular, or doubtful, sufficient attention has not been paid to this point; and in many cases the udders were undoubtedly not

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tubercular. Then there is one objection which is often raised, as to the identity of tuberculosis in the human subject and in cattle. It is held that in woman tubercular mammitis is extremely rare; Dr. Cathcart has given me a reference to eight cases. In cattle it is of common occurrence. I think, however, that here we should take into account the fact that lactation in cattle is carried on under very different conditions from what it is in woman; we know that lactation is prolonged very much longer in cattle—that is, in proportion to the time required—than it is in woman, and consequently the mammary gland is under conditions certainly not favorable to health, or at least very great strength. There is practically a very great over-development of the glandular function. In connection with this I examined a series of glands from a tubercular udder, and I was astonished not only at the enormous amount of tuberculosis, but also at the very great rapidity with which it grows. With reference to the extension from the ovaries along the Fallopian tubes, it is rather curious, but true, that one month I had only six autopsies in the Sick Children's Hospital, and in three of those I found tubercular affection of the Fallopian tubes secondary to tuberculosis of the abdominal cavity. In one of these only, was there any affection in the ovary itself; in the others the tubes were affected without any affection of the ovaries.

Dr. JAMES: The question is, in our efforts to prevent consumption, what can be done by stamping out? Now, I for one, as the result of my study, believe that the stamping out is not of the very great importance which some attach to it. In different animals, if I understood Principal Walley aright, tuberculosis is commonest in the bovine species; but in horses, I think, it is not so common. I am of opinion that it is rather due to the different lives led by these different animals. The cows are kept in the byre and the horses get plenty of exercise. The conclusion that I draw from the whole matter is, that the germ is practically ubiquitous, and when the question is put before me, are we to benefit our fellow-mortals by attempts to stamp out tuberculosis just as we can stamp out small-pox or scarlet fever? I am inclined to say that we cannot expect much in this way. I believe, as the result of my study of phthisis in man, that if you killed every tubercular animal in the country, and banished every phthisical patient, you would have as bad a set of conditions subsisting in another six months. You must deal with tuberculosis, not so much by stamping it out, as with rabies or scarlatina, but as with insanity or cancer, by improving the general conditions. The practical point, therefore, is to stamp it out to a certain extent; but to remember that our efforts would altogether fail if we did not pay more attention to the sanitary conditions of the places where they keep those animals. I believe if the byres were better looked after, and if cows, instead of being tied up in byres all day, were taken out for exercise like horses, we would be doing more to get rid of the mischief than by attempts to stamp it out, because, as I said before, the bacillus is practically ubiquitous.

EXTRACTS AND ABSTRACTS.

THE UNSUITABILITY OF SILVER TUBES FOR TRACHEOTOMY.

Docent Dr. St. Szcz. Zaleski, of Dorpat, says that four or five years ago, while working in the Chemical Institute of the University of Dorpat, the assistant in the surgical clinic came with the remains of a silver tracheotomy tube, which had been left in for about two years without having been withdrawn or cleansed. Of the tube there only remained, owing to the solvent action of the contents of the air passages, the merest shell, in appearance like a kind of coarse cobweb. Thin, rough, uneven, sharp-edged portions were connected by

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silver threads, and it was surprising that the whole had hung together as well as it had done, and that a tube so nearly destroyed had not given way and caused the patient to die from asphyxia, or from injury of the air passages. The silver had been dissolved by the secretions of the bronchi and trachea, and had the tube been allowed to remain much longer, there can be but little doubt that no part of it would have been left.

He explains the chemical process by which the metal was dissolved by the continual action of the chlorine that exists in almost all the secretions of the body, and that is at times abundantly present in the mucous glands, upon the metallic silver which thus becomes converted into chloride of silver, this in its turn, although a very stable substance, being acted upon and dissolved by the alkaline secretions, which contain ammonia and cyanides, in the same way as the sulpho-cyanide of potassium of the saliva has the power of dissolving chloride of silver. This dissolved silver is of course partly expectorated, but part probably is absorbed. It may be that it goes directly to form organic compounds, or these may be reached by indirect means.

He does not know whether this patient suffered from argyria, but as soon as possible afterwards he performed tracheotomy on a cat, and inserted a silver biliary fistula tube, which was allowed to remain until the animal died a month later. By carefully weighing the tube before and after the operation, he found that it had sustained a very appreciable loss, the original weight, which was 1.9892 gramme, having been reduced by 0.0056 gramme, so that it had lost 0.282 per cent. of its total weight. It is thus quite evident that not only silver pessaries in the vagina, or silver tubes in biliary or gastric fistulæ, but silver tracheotomy tubes in the trachea, can be dissolved, the metallic silver being taken up by the fluids of the body.

Two questions present themselves: (1) To what extent is such a gradual wearing away of silver detrimental to the organism; and (2) what substance can best be substituted for silver in the construction of tracheotomy tubes? As regards the first question, we know that the long-continued and constant internal, and even sometimes external, use of silver preparations in very small doses ultimately produces argyria, which, as both clinical experience and experiments on animals teaches us, is a very serious and incurable disease. In the well-known case published by Orfila (who first described argyria), the use of nitrate of silver for eighteen months was followed, not by argyria merely, but by death.

In the case described by Fromman the gray discoloration of the skin occurred after ten months' treatment, during which period the patient had taken altogether 104.51 grammes of the nitrate, equivalent to 66.39 grammes of metallic silver. Riemer also published a case in which the patient became affected after thirteen months' treatment. During this period, he had taken 2,900 pills containing 17.40 grammes of the nitrate, or 21.61 grammes of metallic silver; death following after the consumption of 5,672 pills, which contained 34.032 grammes of nitrate, or 21.61 grammes of metallic siver. Finally Dittrich published a case in which toxic symptoms came on after six months' treatment of a tabetic patient, after he had taken 1.83 grammes of the nitrate (10 milligrammes daily), or 1.16 grammes of metallic silver, the patient succumbing at the end of two years of this treatment after having taken 7.32 grammes of the nitrate—equivalent to 4.69 grammes of metallic silver.

It will thus be seen that the manifestation of the deposition of silver in the tissues by the occurrence of a gray discoloration of the skin takes some time, but the actual deposition of the metal in the liver, bone, medulla, kidneys, and spleen commences very much sooner, producing what has been called *latent argyria*, during which there is no discoloration, though

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the health is affected, as experiments on animals show.

When it is considered that a silver tracheotomy tube weighs from 10 to 16 grammes, and that, if only half of it is dissolved, from 5 to 8 grammes are absorbed into the tissues, we must admit that all the conditions are present for the production of argyria. Of course, a certain part is expectorated, but by far the larger part is absorbed, at all events, as soon as the mucous membrane of the air passages has become inflamed. If we look upon argyria as a grave and dangerous affection, as it is considered by the majority of physicians, the conclusion is forced upon us that the use of such a comparatively easy soluble metal as silver for the construction of tracheotomy tubes is fraught with danger to life. Again, the danger of an irritant action of the dissolved silver on so delicate a tissue as the mucous membrane of the air passages, setting up a catarrhal condition, should not be lost sight of.

There is also another circumstance that must be taken into account in estimating the sources of danger. If the patient or his attendants are so negligent that the tube is not cleaned and examined as to its perfect condition, the destructive action will go on until a time comes when, as in the case related above, it will have become thin, and only threads and films of metal remain—a condition that renders the patient's life most precarious, as there is always grave danger of his being choked or injured by fragments broken off. That there is a possibility of this happening cannot be doubted after the case mentioned.

Regarding the second question — of what material the tube should be constructed in order that it may remain for a long time in the trachea without danger—for patients in good circumstances the most suitable materials are gold, platinum, or rock crystal. For those in the humbler classes, porcelain, glass, or even ivory might be used. These substances are, it is true, to some extent acted upon by the fluids of the body, the silica of glass being even soluble in traces in distilled water, but not in any appreciable quantity; besides which silica is one of the substances which is contained in the body, especially in the case of vegetable eaters, and is not hurtful to it. Gold and platinum may doubtless, after a long time, be to some extent dissolved, especially by the sulphuretted hydrogen, that if the disinfection is not perfect, is sure to exist.—*Lancet*, April 28, 1888.

CARDIAC AND ARTERIAL AFFECTIONS AFTER TYPHOID FEVER.

The cardiac and arterial lesions found at the autopsies on typhoid subjects, says M. L. H. Petit, though they may have caused no symptoms during life, show that they do arise in the course of the disease, and render it impossible for the physician to ignore the relation between the cause and the effects; though the period of latency that separates typhoid fever from the cardiac affection masks to some extent this relation. Examination of these cardiac lesions shows that the orifices of the heart are rarely altered, and that the lesions especially affect the muscular structure of the heart, the right heart being almost sound in all cases.

The aorta and the large branches of the aorta show more evident alterations; the aorta is usually dilated, its external surface injected, its internal surface only a little affected, though often the seat of slightly projecting and irregularly distributed milky plaques.

The microscope shows that the muscular alterations are situated especially near the apex and the columnæ of the mitral valve, an important fact by reason of the effect on the functionation of the valves. The muscular fibre undergoes either granulo-fatty degeneration, or atrophy caused by compression resulting from the acute proliferation of the interstitial tissue. The arteries are attacked in all their parts by a sort of vegetation that causes obliteration

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of the cardiac arterioles. The most important lesion seems to exist in the muscular fibres; it consists of an active proliferation of the embryonal cells and of a sort of acute œdema that dissociates the muscular elements by creating shall lacunæ that give a sponge-like appearance. The hyperplasia of the connective tissue, characterized by the afflux of migrating cells and by proliferation in the place of the fixed cells of the connective tissue, contributes to the strangulation of the muscular elements, which promptly undergo simple atrophy or granulo-fatty degeneration.

These angio-cardiac lesions may be recognized for a longer or shorter time after an attack of typhoid fever, for months, or even for years, during which time the lesions organize and modify little by little the functionation of the circulatory apparatus by changing the normal state to a more or less pronounced pathological one.

From a clinical point of view the cardio-vascular manifestations of typhoid fever are seen in two different aspects; sometimes there is prompt generalization of the lesions, rapid enfeeblement of the heart or sudden arrest of it, giving rise to complications that are almost surely fatal; again, the cardiac or arterial alterations come on slowly, and in a shorter or longer time cause cardiopathies of variable intensity.

The first of these forms has been known for a long time. The second, to which attention was first specially called by MM. Landouzy and Siredy, comprehends the cardio-vascular affections that, coming on slowing and silently, and without marked symptoms in the course of typhoid, pass to the chronic state and make patients that are really cured of the typhoid fever veritable angio-cardiacs. The beginning is slow, and the cardiac affection is manifested only when the work of sclerosis is already advanced in the arteries or between the fasciæ of the myocardium. By reason of of the integrity of the orifices up to this time one cannot rely upon the evidence furnished by auscultation. It is therefore necessary to observe with care typhoid patients during the whole course of the disease, and during all the convalescence. To minute auscultation must be added careful examination of the pulse, examination at the apex to detect the least tendency to hypertrophy; the slightest peripheric troubles of the circulation must be attended to, and the urine should be minutely examined both as regards quantity and quality.

The first bruits that reveal typhoid lesions are constant neither as regards their situation nor their relation with the cardiac revolution; they may be heard over the mitral or aortic orifice, over the aortic sinus, and they may vary with the patient, and present in each one differences that are marked from day to day, according to the evolution of the cardio-aortic complication.

To these phenomena must be added pallor of the face, feebleness, slight dyspnœa, retro-sternal pains with irradiations toward the intercostal spaces of the left side, and of variable intensity, from a simple stitch up to the characteristic pains of angina pectoris; in the last case hypertrophy of the heart is easily made out. The aortic pulse appears at the same time.

The diagnosis of the cardio-vascular lesions of typhoid is easier than one would think, say Landouzy and Siredy. During typhoid and its convalescence minute auscultation, and daily examination of the pulse give the diagnostic signs. According to these authors the evidences furnished by the pulse are superior to those given by the temperature.

In the treatment of the primary arteritis the physician must resort to peri-cardiac and peri-aortic revulsion, under the form of the hot iron and cauterants, and the iodide treatment with caffeine will be of great service. The knowledge of the relations between typhoid fever and such cardiac and vascular lesions as have been spoken of will be of service in prophylaxis. —*L'Union Médicale*, No. 50.

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THE EYES IN CHOREA OF CHILDHOOD.

Dr. G. E. De Schweinitz, of Philadelphia, has just published in the *New York Medical Journal*, June 28, 1888, an account of the examination of the eyes of fifty cases of chorea of childhood. He draws the following conclusions:

1. The irides of choreic children quite commonly present chromatic asymmetry in shade, just as the same condition has been found in other forms of nervous disorders.

2. Slight differences in the width of the pupils may be found, but not more frequently—in fact, not as frequently—as these have been noted in perfectly healthy individuals.

3. Facial asymmetery is present in about one-half of the cases, just as this is present in cases of high refractive error, and also in individuals perfectly free from nervous disorders.

4. Hypermetropia and hypermetropic astigmatism are vastly the preponderating conditions of refraction in the eyes of choreic children, being found in about 77 per cent. of the cases, exactly as hypermetropic refraction is the preponderating condition in childhood generally, being found in 70 per cent. of the eyes of children in the elementary school years.

5. Imperfect equipoise of the eye-muscles is found in the great majority of the cases, but imperfect equipoise of the eye-muscles is very frequently present in the eyes of school children free from chorea or neuropathic tendencies.

6. Embolism, atrophy of the disc, and optic neuritis may occur during or after attacks of chorea, but appearances in the fundus oculi characteristic of the disease have not been found.

7. As Octavius Sturges remarks: "It seems certain that a fairly constant proportion of chorea is directly connected with what may be called injudicious schooling, . . . but such nice adjustment as shall prevent overstraining on the one hand and overindulgence on the other is practically unattainable." Certainly an endeavor to lessen the overstrain of the eyes should be made. Hence the refraction errors and muscular defects in these children should be carefully and fully corrected by glasses, by prisms when necessary, or even by judicious surgical interference, and thus a probable exciting element removed; just as we should perform the same service for eyes similarly afflicted in children who are not choreic; just as we should improve the hygeine, remove the anæmia, treat the disabled circulatory apparatus in children who are not choreic. Evidence, however, seems quite as lacking that hypermetropic refraction is the basal cause of chorea as it is that chorea is the cause of the hypermetropia.

SUBPERIOSTEAL REMOVAL OF HALF OF LOWER JAW; RECOVERY, WITH ALMOST ENTIRE RESTORATION OF THE BONE AND PERFECT MASTICATORY MOVEMENT.

Florence W., aged 6, was admitted to Charing Cross Hospital, on January 21, 1887, with extensive necrosis of the left half of the lower jaw. She had already been operated upon, and excision of the entire bone from the outside advised by a hospital surgeon. This the mother would not consent to; and she was placed under Mr. Bellamy's care.

On admission, the child had a most marked strumous aspect, the left side of the face being enormously swollen, the swelling extending over the temporal region. There was a sinus just in front of the external auditory meatus and one below the angle of the jaw.

On January 30, Mr. Bellamy enlarged the opening in the superior sinus, and removed the condyle, ramus, and angle, and opened up the remains of the sinus just under the angle. The periosteum was free

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and loose and retained the original form of the bone in a most remarkable manner.

February 1. The discharge was profuse and very offensive, although the cavity had been drained antiseptically. On the 7th the swelling began to decrease, and the discharge was quite healthy. On the 14th a small spicula of bone was found loose and removed from near the symphysis.

The child made an uninterrupted recovery, with the exception of some slight paralysis of the orbiculares pelpabræ and oris.

Seen on April 24, 1888. The two sides of the face are nearly equal in size; there is a small cicatrix behind the angle of the jaw; and on manipulation the new jaw feels somewhat nodulated, no doubt soon to mold itself into proper form. The articulation seems to be perfect, and the movements of the jaw as free as possible. In fact, there is no deformity at all. The teeth behind the first bicuspid have gone.—*British Medical Journal.*

ANTIPYRIN IN POLYURIA AND DIABETES.

At a recent meeting of the Société de Thérapeutique de Paris, M. Huchard spoke of a case of excessive polyuria under his care, which had been benefited by antipyrin. The urine had decreased from 28 to 3 litres a day. At different times there was an increase when the drug was discontinued. At the time of the report none had been taken for several days, and there was no return of the polyuria. It is probable in this case, says Huchard, that the drug acted as a moderator of bulbo-medullar excitability. In this case also a violent attack of dyspnœa, which lasted two hours, was calmed by antipyrin. The substitution of ergot for antipyrin in this case caused an enormous increase in the urine. Bicarbonate of soda was then given with the antipyrin, and the urine rapidly decreased. The soda was at first given in doses of 2 grammes a day, and increased to 6 grammes.

In a second case, the patient passing about 10 litres a day, the urine was diminished one-half in five days. A third patient passed 800 grammes of sugar a day. In four days under antipyrin the urine fell from 12 to 3.90 litres after the administration of 6 grammes of the drug, and the sugar decreased to 71 grammes a day.

With two grammes of antipyrin Dujardin-Beaumetz obtained results parallel to those of M. Huchard. Albert Robin has seen the total disappearance of diabetes, without special régime, after the use of 4 grammes of the drug, in from 15 days to 3 weeks; but after a time the patients became albuminuric. It is known, however, that diabetics sometimes have intermittent albuminuria, and it is no cause for alarm when albumen appears temporarily in the urine of these patients.—*Le Bulletin Médical*, No. 30, 1888.

A MAN WITHOUT A LARYNX.

The Paris correspondent of the *Lancet* writes: A short time ago I read a note in a scientific journal, entitled as above, which was reproduced from the Paris *Figaro*, and which was to the following effect: At No. 22, Rue de la Banque, Paris, may be seen a man (a wine merchant) who has been living without a larynx for the last two years. In April, 1885, he consulted Dr. Fauvel, the celebrated laryngologist, on account of severe dyspnœa, to which he had been subject for some time. Dr. Fauvel diagnosed an osteosis with œdema and ulceration of the larynx, and proposed to perform tracheotomy on the man. This he refused to submit to, and consulted other physicians; but, as he was getting worse, and the danger of suffocation became imminent, he decided upon the operation. Tracheotomy was practiced on February 13, 1886; but as this did not afford much relief, Dr. Péan, on February 27—that is, a fortnight afterward—per-

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formed ablation of the larynx This was done at the hospital, and on March 19 he was able to eat, and left the hospital cured and apparently in good health. I saw the man in his shop (a public-house) a short time ago, serving his customers as if nothing had happened to him. He is thirty-seven years of age, but looks about fifty. At my request he very willingly showed me his throat, where I perceived the cannula introduced by Drs. Péan and Fauvel, and whenever he had to answer my questions he closed the orifice of the cannula with his finger, and although his voice was not very audible, yet he spoke distinctly. He has not changed his habits, but eats and drinks as much as he ever did. As far as I could learn, the man had no antecedents of syphilis or tubercolosis, but had been frequently treated for "colds on the chest."

LEPROSY IN RUSSIA.

The latest advices to hand point to the fact that in Russia, chiefly in the Baltic provinces, leprosy is increasing. In Lithuania, for example, there are to be found from two hundred and fifty to three hundred lepers, and in the district of Dorpat, it is said, the proportion of lepers is about one to a hundred of the population. There are reasons, however, for believing that the latter estimate is somewhat of an exaggeration. The inhabitants of these districts are naturally exhibiting some uneasiness in relation to the increase of this terrible disease in their midst, and have petitioned the government to appoint a commission for the purpose of inquiring into the facts, with a view to the adoption of some means for the arresting the propagation of the malady. It has just been decided to open a hospital at Riga with forty beds, for lepers, and this is undoubtedly a step in the right direction, though perhaps a small beginning. In Norway, where leprosy is also an epidemic, ample hospital accommodation exists for the treatment and isolation of the disease. Three leper hospitals are maintained by the State; one at Christiania in the south, another at Bergen in the west, and a third at Trondhiem in the north, into which the patients are admitted from all parts of the country. At any time during the course of the treatment the patients are free to return to their homes, in accordance with the belief in Norway, established by law, that the disease is not contagious.—*Medical Press and Circular.*

BACTERIOLOGICAL EXAMINATION OF THE UTERUS AFTER PHYSIOLOGICAL PARTURITION.

Drs. Straus and Sanchez, Toledo, have made a number of researches and experiments on the females of certain animals with regard to the state of the uterine cavity after normal parturition. The first part of these researches consisted in bacteriological examinations of the uterine cavity and of the liquid it contained at different periods after parturition. The experiments were made on rabbits, guinea-pigs, and rats and mice. The animals were killed within from three hours to three days after parturition, and immediately after death the uterus and the Fallopian tubes were opened with all precautions.

The experiments showed that in these animals, after normal parturition, neither the uterine wall nor the uterine secretions contained any micro-organisms at all; and that the numerous germs that are found in the vagina do not penetrate into the uterus, or if they do are immediately destroyed. These experimental facts are analogous to those found by Döderlein in experiments on the lochia of the parturient woman: that the lochia of women having no fever do not contain bacteria, and do not produce toxic effects when inoculated on animals; while the lochia of women that have fever contain microbes, and do cause toxic symptoms when inoculated on animals.

Attempts were made also to inoculate these animals with pure cultures of different pathogenic microbes (bacillus anthracis,

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vibrion septicus, staphylococcus pyogenes aureus, and bacillus of chicken cholera). The last microbe was the only one that had any effect. There is thus seen to be a strange contrast between the resistance of the animal uterus and the vulnerability of the human uterus to pathogenic microbes.—*Gazette de Gynécologie*, May 15, 1888.

RECENT OBSERVATIONS ON TUBERCULOSIS.

The stimulus given by Koch's discovery of the tubercle bacillus to a closer clinical observation of tubercular affections has resulted in a clearer understanding of some of the exceptional manifestations of tubercular disease. One of the most interesting additions to our knowledge in this respect is the proof, which is being continually strengthened by fresh observation, that the so-called dissection anatomical, or *post mortem* tubercle is really a manifestation of local tuberculosis, acquired by inoculation. Finger has lately published a case in which a man who had tubercular disease had suffered from five of these dissection warts which preceded the development of general tuberculosis, and in which microscopical examination showed the tubercle bacillus. Steinthal (*Monat. f. Prakt. Derm.*, 1888, p. 437) relates the case of a woman who was inoculated with tubercle on the skin of the hand through washing the clothes of her phthisical husband. Meyer (*Ibid*, p. 283) has related a case in which a child was infected with local tuberculosis of the genital organs by the wound made in the rite of circumcision being sucked by the operator, who was the victim of tubercular disease; and at a recent meeting of the Medical Society at Copenhagen, Dr. Salomon, sen., stated that he also had observed cases of tubercular infection produced in the same way by ritual circumcisers who practiced suction. On account of the dangers of the transmission of syphilis and tubercle in circumcision, Dr. Salomon, sen., advocated that the rite should be performed under precautions laid down by the authorities.—*British Medical Journal.*

TARSECTOMY FOR SENILE ECTROPION.

At the recent meeting of the Société Française d'Ophthalmologie, M. Boucheron, of Paris, described under the name "tarsectomy" an operation for senile ectropion in the early stage. He practices excision of the tarsal cartilage, on the conjunctival side, when the ectropion is situated on the lower lid. The tarsectomy is partial when the ectropion is partial; and it is almost total when the ectropion is complete—that is to say, when the cartilage is totally luxated, and when the contracture of the orbicularis palpebrarum, in occlusion of the lids, maintains the tarsal luxation. Ablation of the tarsal cartilage, save the band one mm. broad close to the lids, pemits the orbicular muscle to go up to the brows, and the re-application of the lid to the eye.

The *redressement* of the lid is immediate. The permanence of the *redressement* is finally maintained by the formation of a small cicatricial conjunctival band substituted for the removed portion of the tarsal cartilage. The cicatrix, however, is of little importance, because the conjunctiva of the cul-de-sac unites with the ciliary border of the lid, either by first intention, or very rapidly by second intention.

There is no consecutive ectropion. A dozen operations have been made by Boucheron with perfectly satisfactory results.

While Boucheron does not insist so much upon the absolute novelty of the operation, he particularly insists on the facility, the security, and the value of it as he practices it: Application of Desmarres' or Snellen's forceps; incision along the orbital border of the tarsal cartilage; dissection of the cartilage; section and ablation of the cartilage one mm. from the free border; for partial ectropion, extraction in the

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same manner of the luxated part of the cartilage; compress dressings over the closed lids.—*Progrès Médical*, No. 19, 1888.

ON THE TREATMENT OF SEBACEOUS TUMORS.

Many people, the subjects of congenital sebaceous tumors and "wens," object to having them removed, on the score that the remedy is worse than the disease, and the after-consequences may be serious.

The following is the method I have adopted in such cases, and with marked success. With a cataract knife (Graefe's) puncture the cyst, and gently squeeze out the contents; then introduce a very small piece of nitrate of silver. On the following day, by means of a pair of forceps, the capsule of the cyst can be withdrawn, just like the shell of a bean, without any portion being left adherent. In no case has there ever been any return of the growth or any ill effects.

The method, if tried, will be found to have many advantages apart from its simplicity and thoroughness.—*British Medical Journal.*

BOOK REVIEWS AND NOTICES.

THE LANGUAGE OF MEDICINE. A manual giving the origin, etymology, pronunciation, and meaning of the technical terms found in medical literature. By F. R. CAMPBELL, A. M., M. D. Pp. viii and 318. New York: D. Appleton & Co. 1888. Chicago: A. C. McClurg & Co.

The author says that "the object of this work is to provide the medical student with a suitable means of acquiring the vocabulary of his science." This is a commendable object, and both the book and the subject deserve more attention than the latter has received during recent years. The author claims that too little attention is given in medical education to making students men of general and linguistic culture, that the tendency of the profession is away from those lines which made the physicians of former generations scholarly men rather than scholars, and he deplores the fact. He says that too many physicians abbreviate the Latin of their prescriptions simply to conceal their ignorance.

Part I, treats of the origin of the language of medicine, *i. e.*, the words which are peculiar to medical language. Part II, considers the Latin element in the language. Part III, the Greek, and Part IV, the elements derived from modern languages.

It is not claimed that the book is a complete medical lexicon, and there has been no attempt to make it such. The principal words, however, from both the Greek and Latin are given, together with prefixes, suffixes, prepositions, and clearly stated rules for their combination, inflection, and correct use in prescription writing. An ample number of examples are furnished for illustration, and exercises are also given for those who need them. The chapter containing a list of the most commonly mispronounced words will prove profitable reading for many doctors.

Those physicians who have the training of the colleges of this country, will find ample material in the book to verify the quotation with which this book notice begins. But whether those wholly untrained in Greek and Latin will fare so well can be determined only by a trial. Probably, however, they will.

The author's style is both good and attractive, and the publisher's work is exceptionally well done. The book will be found convenient for reference, suitable for a text-book, and profitable reading for all classes of medical practitioners. If, as the author suggests, the work should, perhaps, have been done by a professor of language, the medical profession is to be congratulated that he did not wait for any such desideratum. E. W.

MEDICAL PUBLICATIONS, HARVARD MEDICAL SCHOOL. J. COLLINS WARREN, chairman of the committee on publication. 1887.

There are some 200 pages in this book, which is composed of articles contributed by the medical corps of the school, and represent only a portion of the original work of the year 1887. The articles are reports of work in experimental anatomy, physiology, pathology, and surgery, and a consideratiou of the artificial feeding of infants. The papers are excellent, and represent very creditable work; but the great variety in their nature precludes special mention in this connection.

FOURTEENTH ANNUAL REPORT OF THE Secretary of the State Board of health of Michigan, for the fiscal year ending September, 30, 1886. Lansing, Mich.: Thorp & Godfrey. 1888.

The first part of this report, xlix pages, contains the official records of the meetings of the board. In the second part, of 324 pages, the papers which are of

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greatest interest to the profession are the now celebrated reports of Professor Vaughn, upon the presence of tyrotoxicon in poisonous ice cream; and that of Dr. Baker, secretary of the board, upon the causation of pneumonia. The work which the secretary is doing in observations and reports upon meteorological conditions, and upon the prevalence of communicable disease in Michigan is highly creditable.

A MANUAL OF PHYSIOLOGY. A Text-book for students of medicine. By GERALD F. YEO, M. D., F. R. C. S. Third American, from the second English, edition. Pp. xxi and 758. Philadelphia: P. Blakiston, Son & Co. 1888.

In the preparation of this edition the changes rendered necessary by recent research have been made, together with a correction of inaccuracies.

The favor with which this treatise has been received, shows very clearly how successful the author has been in his attempt to write a book for the use of medical students. No one can know what the relative value of the many facts of physiological science is to such students, as well as a practical medical man does. In the short time allotted by even our best colleges for the work it is impossible to make of the average medical student, both a good physician and a good physiologist. The author fully appreciates this fact, and it is along this line that the merit of the work is most conspicuous; but there are other merits in the volume. The style is clear and agreeable. The drawing of histological structures is exceptionally true, and those of Dr. Bevan Lewis of the spinal cord and brain of monkeys can only be described as beautiful in their delicacy and accuracy. E. W.

A COMPEND OF HUMAN PHYSIOLOGY. Especially adapted for the use of medical students. By ALBERT P. BRUBAKER, A. M., M. D. Fourth edition, revised and enlarged. Pp. viii and 174. Philadelphia: P. Blakiston, Son & Co. 1888.

This is No. 4, in the "Quiz Compend" series issued by its publishers. It is especially intended for the use of students preparing for examination. For this purpose it is difficult to say in what manner this compend can be improved. It deserves its popularity.

THE RECTUM AND ANUS. THEIR DISEASES and Treatment. By CHARLES B. BALL, F. R. C. S. I., Dublin. With 54 illustrations, and colored plates. 12mo. Pp. 410. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co. 1888.

Of the numerous manuals lately written upon this subject, this book is one of the best.

Each subject is concisely and systematically treated; its literature well presented and deductions carefully drawn. The chapter upon malformations is comprehensive, and is interesting reading.

The author's descriptions of operations aided by drawings are easily understood, though the relative advantage of one method of procedure over another for the relief of the same condition, is not greatly emphasized.

The lithographic plates show rather too much color to be faithful representations. H. H. F.

A REFERENCE HANDBOOK OF THE MEDICAL Sciences. Embracing the entire range of scientific and practical medicine and allied science, by various writers. Vol. VI, Pra to Tep. 778 pages. Illustrated by chromo-lithographs and wood engravings. Edited by ALBERT H. BUCK, M. D. Supplied to subscribers only. New York: William Wood & Co. Chicago: W. T. Keener.

This sixth volume of the *Reference Handbook* sustains the character of the five volumes which have preceded it. It is comprehensive in its scope, and the subjects are well presented.

It is printed with clear type on good paper.

When completed the set will constitute a small library in itself.

THE TREATMENT OF HÆMORRHOIDS BY injections of carbolic acid and other substances. By SILAS T. YOUNT, M. D. Second edition. Duodecimo, pp. 102. Echo Music Co., La Fayette, Indiana. 1888.

A valid excuse for the existence of this volume is hardly apparent, as it contains nothing at all new (except the description of a speculum invented by the author), and the book is too small to treat thoroughly the subjects upon which it touches. The work abounds in grammatical errors.

SURGERY—ITS THEORY AND PRACTICE. By WM. JOHNSON WALSHAM, F. R. C. S. With 236 illustrations. 8vo. Pp. ix and 655. Philadelphia: Blakiston, Son & Co. Chicago: W. T. Keener. 1887.

Individual points of excellence are likely to be few as distinguishing any one *Manual of Surgery*—intended for students' use—from another on the same subject, as such works are almost of necessity compiled and extracted from other and more extensive treatises; the chief value of the manual being that it presents the subject in condensed form.

The volume under consideration is more nearly complete than most of its kind; is systematic and clearly written. The illustrations are numerous, some of them new, and a few of them good.

H. H. F.

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ACCIDENTS AND EMERGENCIES. A Manual of the treatment of surgical and other injuries, in the absence of a physician. By CHARLES W. DULLES, M. D. Third edition, illustrated. Duodecimo. Pp. viii and 119. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener.

This little book is full of practical suggestions, so worded as to be easily understood and acted upon by any person of average common sense and discretion in a way likely to benefit the patient, and in many cases to save life.

The volume should find a place in every household, especially if situated at a distance from medical aid. The fact that it has reached its third edition is in itself a recommendation. H. H. F.

MISCELLANY.

XANTHELASMA OE THE HEART.— At the VII Congress of Internal Medicine, held at Wiesbaden in April, Leube showed a very rare pathological specimen —a heart affected by xanthelasma. The diagnosis was made during life of mitral insufficiency due to xanthelasma of the endocardium, and the autopsy confirmed the diagonsis.

DANGER FROM THE SANDWICH ISLANDS. —The Consul-General at Honolulu reports that many lepers leave the Sandwich Islands as soon as the disease appears, the greater number coming to the United States, in order to prevent being banished to the island of Molokai.

TREATMENT OF MEDICAL ERYSIPELAS. —For twenty years Jaccoul has used wine of quinquina in large doses (from 250 to 450 grammes a day) and milk diet in facial erysipelas, and has had most satisfactory results from it.—*Journal de Méd. de Paris*, May 20, 1888.

MEDICAL GRADUATES AND THE VIRGINIA EXAMINING BOARD. — It is said that 34 graduates of the College of Physicians and Surgeons of Baltimore have been examined by the Virginia Board of Medical Examiners since January 1, 1885, and that 10 of these failed to pass the examinations.

LITHIATED PILLS FOR DIABETES.—P. Vigier recommends the following formula for pills for diabetes:

Carbonate of lithia.....10 centig.
Arseniate of soda .....3 millig.
Extract of gentian.....5 centig.

For one pill. Take one morning and evening, and continue after the sugar has disappeared from the urine.

WASH FOR SYPHILITIC PSORIASIS. —

Bichloride of mercury.....1 gram me.
Muriate of ammonia.....1 "

Dissolve in two litres of tepid water, and wash the affected parts, in cases of plantar and palmar syphilitic psoriasis, night and morning.—*L'Union Médicale*, May 26, 1888.

A monument to Cohnheim was unveiled in Leipzig on June 3.

ANNOUNCEMENTS.

THE AMERICAN OTOLOGICAL SOCIETY will hold its twenty-first annual meeting on the 17th of July, at the Pequot House, New London, Conn.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY will hold its twenty-fourth annual meeting at the Pequot House, New London, July 18 and 19.

THE AMERICAN RHINOLOGICAL ASSOCIATION will hold its sixth annual meeting at Cincinnati, Ohio, on September, 12, 13, and 14.

The fifty-sixth annual meeting of the British Medical Association will be held at Glasgow, on August 7 and three following days. The President-elect is Professor W. T. Gairdner, M. D., LL. D. The Address in Medicine will be delivered by Dr. Clifford Allbutt, of Leeds; the Address in Surgery by Sir G. H. B. Macleod, M. D.; and the Address in Physiology by Dr. J. G. M'Kendrick. An address on "Recent Investigations in Surgery" will be given by Dr. W. Macewen.

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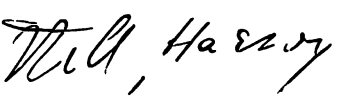

W. HARVEY, M. D.

DISCOVERER OF THE CIRCULATION OF THE BLOOD.

"The circling streams, once thought but pools of blood,
(Whether life's fuel, or the body's food)
From dark oblivion Harvey's name shall save."

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The Medical Journal and Examiner.

VOLUME LVII. AUGUST, 1888. NUMBER 2.

ORIGINAL COMMUNICATIONS.

SECONDARY MIXED INFECTION IN TYPHOID FEVER.

BY BAYARD HOLMES, M. D.

Typhoid fever is a term applied heretofore to a complexus of symptoms, well recognized and defined, and accompanied by a peculiar lesion in the intestinal tract; but now to the invasion of a non-pyogenic micro-organism, however that invasion take place—whether by way of the intestinal or of the respiratory* tract, and whether or not accompanied by the classical symptoms which characterize abdominal typhus.

In this strict sense, typhoid fever is the infection of the typhoid bacillus, and its direct consequences. Any symptoms and results which are due to other micro-organisms are not parts of the typhoid disease, and must be looked upon as accidental complications. The rôle of the typhoid bacillus is now demonstrated beyond the possibility of a doubt. The bacilli are found in the greatest numbers in the infiltrated Peyer's glands, before ulceration begins. Thence they are carried to the mesenteric glands, which imperfectly act as filters and detain them a short time. In a little while the pulmonary circulation is invaded through the thoracic duct, and a pneumonia follows, which is one of the early symptoms observed in most cases of typhoid. Examination by means of sections of the lung at this time, shows capillary emboli containing the bacillus. Only a part of the microbes are retained in the capillaries of the lungs. Many, if not most of them, escape into the arterial circulation, and they are found in every organ of the body, giving rise, at times, to all the consequences that capillary embolisms entail. The spleen is enlarged, and cultures from its blood demonstrate the presence of the bacillus. Sections from the gland show small capillary emboli containing the non-vegetating microbe. The same conditions are found in the kidneys; and when the lesion is sufficient to allow the passage of albumen into the urine, the bacilli may be demonstrated either microscopically or by cultures.

An earlier invasion of the blood sometimes, if not always, takes place through the portal circulation. From the infected glands in the intestine, the bacilli force themselves through the wall of a neighboring vein, and are carried into the liver, where they are found in masses in the portal capillaries. (*Liebermeister*, pp. 105, 106).

The typhoid bacillus does not produce suppuration, it does not completely destroy living tissues, except when in masses sufficient to produce large infarctions as in the spleen and kidneys. It does produce a toxæmia or sepræmia, and later, a septicæmia, which has a tendency to self-limitation. In the light of bacteriology it seems of itself to be far less fatal than the statistics would indicate. A careful consideration of the

* Klebs, Algemeine Pathologie, June, 1887, I, 165-175.

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various and grave consequences which follow this disease, leads us to think that most of them are due to secondary invasion with bacteria which have nothing to do with the disease itself, and any of which may be absent in a typical course of typhoid fever. Although the typhoid bacillus is found in the dead tissues which result from constant pressure and consequent arrest of circulation under the bony prominences of the patient, and though they vegetate and multiply there, there is no evidence that they produce any further destruction of tissue.

It is not, then, the work of the typhoid bacillus which we wish at this time to consider. Wherever the invasion of this bacillus takes place, whether in the superficial lymph-glands of the intestinal or of the respiratory tract, the inflammation in these glands due to the irritation of the bacillus and its ptomaine so diminishes their resistance that a secondary invasion with pyogenic and other bacteria is a very easy thing. Many of the pathogenic bacteria are only facultative parasites of man, living for the most part as messmates with him on the contents of his intestines, or, as some think, being necessary even to mammalian digestion. When the intestine or any part of it is dead, or the barriers which ages of association have thrown up are torn down by truamatism, or otherwise, the before harmless or even helpful bacteria set up a destructive, saprophitic colonization of the tissues of their host, and, in the neighboring living tissues they may produce suppuration, coagulation necrosis, hæmorrhagic infiltration, lymphatic engorgement, or any of the results which are so frequently demonstrated in the infectious diseases, dependent, of course, on the peculiar anatomy and physiology of the invading parasite. Of all the bacteria capable of becoming pathogenic, the pus-microbes are the most ubiquitous, and their influence is most disastrous to life. It will be well, then, to consider at some length the manner of infection with these parasites, alone, and then, afterward, some of the other kinds of microbic invasion separately.

In addition to the local lesion in the intestine or larynx, the facility of infection with the pus-microbe is increased by the general condition of the patient brought about by the simple typhoid disease. The nutrition of the tissues is reduced to a minimum, the circulation is impeded directly by numerous capillary emboli, and indirectly by a diminished nutrition of the heart muscles. The poor quality of the blood and the retarded circulation invite the formation of thrombus. The lymphatic circulation is equally impaired. While under ordinary circumstances of health, the lymph apparatus has not only a great power of resistance to bacterial invasion, but also a remarkable power of destroying the invader, a few days of typhoid infection is enough to interfere with this function materially.

The infected and engorged Peyer's gland is very soon attacked by passing suppurative bacteria. Ulceration and sloughing follow in proportion to the destruction of tissue by the second infection. At this time, the symptoms begin to show that a new factor has begun to operate. The temperature is less regular in its remissions, and takes on a septic character similar to surgical-wound diseases. The micrococci are carried on into the mesenteric glands, where they may, in favorable cases, be arrested and destroyed. The glands after being enlarged for a long time return to nearly the normal size. The fatty degenerated material is removed, and the residue becomes calcified.

Unfortunately, this happy issue is not always realized. The filtering power of the already over-taxed gland is overcome, and the great lymphatic channel is flooded with the escaping bacteria. They are poured into the venous circulation, and find their way directly into the lungs. Here capillary embolism results a second time, and with the presence of a parasite which is capable of producing a destructive inflammation. This is the pneumonia which Murchison

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says "rarely appears before the third or fourth week," and then "may terminate in small abscesses, or, rarely, in gangrene" (p. 557). It must not be supposed that the presence of the pus-microbe is the only essential to the formation of destructive inflammation, or that, even in tissues the vitality of which is so much reduced by disease as the lungs in the third week of typhoid, they would invariably set up the suppurative process. The investigations of DeBary and Grawitz lead us to think that the resistance of the tissues is a much more important and powerful factor than we had supposed. But not all, if even a small part, of the bacteria are arrested in the capillaries of the lungs. Many of the emboli here are, no doubt, taken up by the pulmonary lymphatics and carried to the mediastinal glands, to be destroyed. Enlargement of these glands is frequent, and their breaking down into abscess is occasionally noticed.

Upon the arterial side of the circulation, the resistance of the tissues is, upon the whole, better preserved; but infection of bones, joints, and other serous cavities, and of the large organs of the body does take place. Then all the severe symptoms of osteomyelitis, suppurating synovitis, pericarditis, pleurisy, peritonitis, meningitis, and abscess in the large organs are added to the typhoid history. It is no wonder that the patient, already reduced by weeks of disease, is unable to resist this unexpected invasion, and very soon succumbs. These complications make up a very considerable bulk of the fatalities from abdominal typhus, though each in itself is rarely met with.

There are cases in which it seems that the bacteria of suppuration circulate in the blood freely until they are arrested by the arterial capillaries, and are then removed by the lymphatic apparatus. It is only in this way that we can account for the disappearance of bacteria experimentally injected into the arterial side of the circulation. For a time they are found in the blood, but in a few days no trace of them can be found by means of cultures. Sometimes, however, when there has been nothing to indicate that the tributary parts have been occupied by infection, the centrally located lymphatic glands swell up, and even undergo a destructive inflammation from the arrested pathogenic microbes. In the sequelæ of typhoid, adenitis is noticed by all systematic authors. By some it has been considered a favorable symptom (Chomel), while others have scarcely ever seen a case recover in which it had occurred. Of all the packets of glands it seems that those of the axilla are most frequently the seat of this form of secondary suppuration. One case is reported in which suppuration, beginning in the axilla, extended to the elbow, and into the thorax, and produced death by perforating the axillary vein. The patient died of uncontrollable venous hæmorrhage. In a case which came under my own observation this secondary infection of the axillary glands produced symptoms which resembled a relapse in the typhoid.

"Miss A., age 20, had been ten days convalescent from a very severe typhoid. Her temperature had been high, requiring the vigorous use of antipyretics. Upon the thirty-ninth day of her sickness, and the fourth day on which her evening temperature was normal, she began to eat solid food. Two days later the evening temperature went up to 100° Fahr. and continued to rise about a degree higher every night, until on the forty-seventh day of the sickness it was 103°. The physician who had attended her being taken sick at this time, I was called to the case. I found the patient very much emaciated. The abdomen was not tender or tympanitic. The stools were well digested and solid. The tongue was not dry and black, but lightly coated. There was ravenous hunger, and dreams of food disturbed sleep. The patient had been put back on a milk diet as soon as the temperature had declared itself. There was a poultice in the

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right axilla. The glands of the axilla were severally enlarged to an inch or more in diameter. One of the more superficial ones was discharging a small amount of pus through a follicle of the skin.

"Thinking that the condition of the axilla was a sufficient cause for the return of the temperature, I restored the more nutritious diet, removed the poultice and had the axilla shaved and covered with a wet carbolized dressing. On the following day, with the help of Dr. H. H. Frothingham, I anæsthetized the patient with chloroform and extirpated the glands of the axilla. The result is shown in the chart which I present. It was kept by the nurse. Although I failed to secure a perfectly aseptic wound, the temperature fell in four days to the normal, and the patient made an uninterrupted recovery."

Thus far we have considered the infection of a typhoid with the pus-microbe, the balance of power being, upon the whole, all the time on the side of the host. This condition of affairs can not always be maintained. The tissues of the body are all more and more impaired in the continuance of the disease, and, at last, a time comes when the invasion of the coccus is unresisted. Abscess formation takes place in all parts of the body. These foci may not reach a great size before death terminates their progress. This is especially the case in the abscesses of the brain, which Popoff has shown are almost always miliary and multiples. But besides the multiplication of the bacteria in definite localities, it may take place in the circulating blood itself. A small thrombus forms about the microbe, or a phragocite fails to devour its prey, and itself becomes food for the conqueror. In these ways the bacteria vegetate and multiply in the blood and lymph. The patient is in a state clinically termed septicæmia. This is, perhaps, the condition into which all cases of pyæmia ultimately verge.

But the disasters which the pus-microbe may precipitate upon the typhoid are not yet all rehearsed. At the first point of attack the destruction may be so great as to involve all the coats of the intestine, and perforation take place. In this way the largest serous cavity of the body is at once hopelessly infected, and fatal issue is not long delayed. Sometimes adhesions take place in advance of the destruction, and the perforation may be into a connective-tissue space about the cæcum, or into one of the large organs, or into another intestine. When the destruction involves a large blood-vessel in which an anticipating adhesive inflammation has not taken place, hæmorrhage may result, which, at once, or after many repetitions, may lead to dissolution. There is reason to think, however, that this is not the only cause of intestinal hæmorrhage in typhoid. When the eroded vessel is a vein, the septic bacteria may be carried into the portal circulation, and set up suppuration in the liver. In this way abscess of the liver may arise rather early in the disease, and before general pyæmia appears.

When the low state of nutrition of all tissues has reduced the resisting power to a minimum, infection may take place in any part of the body where germs are present. It is in this way that old scars open, from the germination of lasting spores, and old bone-disease lights up again. The secreting glands of the body may be invaded by way of their ducts. Suppuration of the parotid is not infrequent, and some cases of suppuration of the gall-apparatus without abscess of the liver are explainable only in this way.

Through the Eustachian tube the middle ear is invaded, and extension may go on into the brain, resulting in abscess or meningitis. In the same manner the sexual tract may offer a way to invasion, and orchitis, ovaritis and peritonitis supervene. Slight traumatisms result in defects of the skin, which immediately become the seat of protracted suppuration or other forms of infection.

It is probable that through the constant

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picking a way is made for infection with erysipelas, which so frequently appears about the nose and lips of typhoids. Tetanus also may make its way through the abraded skin or intestinal mucous membrane.

That a specific infection is the cause of the disease which Ceci terms hæmorrhagic infiltration, is now well demonstrated. This is the secondary infection which causes the uncontrollable epistaxis in diphtheria. There can be no doubt that the same form of infection is responsible not only for the epistaxis of typhoid, but, also, for a great many cases of diffuse intestinal hæmorrhages and hæmorrhages from the stomach and colon.

Noma, malignant œdema, and diphtheria present no anomalies in their appearance in typhoid.

There is a form of infection to which the poor typhoid is exposed which is the most pitiable of all. Either from the presence of the lasting spores of the bacillus, or from infection through the milk and other food, or through the inspired air, tuberculosis is a very frequent sequela of typhoid. All systematic writers notice this frequency, and attribute it to the protracted depression of the disease. Murchison says that it is more common after typhoid than after typhus, and that it is to be feared in all cases when hectic fever and bronchitis persist after the end of the fourth week (p. 558). Louis records four cases of section in which the lungs were found studded with recent tubercle. The frequency of tuberculosis and typhoid in Ireland has led Kennedy to suspect some essential relation between them. There is no doubt that the low state of vitality to which the patient is usually reduced and the slow convalescence give the latent spores in old glandular foci or in the cicatrices of the lungs an opportunity to vegetate again, and at the same time offer easy access to more virulent bacilli from tubercular nurses, or patients, or food.

It is to be regretted that no extensive and systematic study of the complications of typhoid have been clinically made in the light of modern bacteriological research. The use of cultures from aspirated products in the course of typhoid has been only just begun. Such researches carried on diligently for a few years would throw great light on many dark corners of symptomatology and pathology. So far we can only say that the work done allows us to reach theoretically and provisionally the following practical conclusions:

The local effects of an invasion with the typhoid bacillus is a non-destructive one, and the tendency is toward complete restitution to a state of health.

The primary lesion in the bowel or in the larynx gives rise to a point of least resistance; and the general impairment of nutrition renders all those causes which ordinarily determine the localization of infection far more potent.

Pyogenic and other forms of infection do take place through the primary lesion, and result in more than ordinarily serious consequences on account of the diminished resistance of all the tissues of the body.

Therefore all traumatism to the abdomen, either external, through violent, carless, or unnecessary palpation, or internal, through the use of food containing solid particles which might cause abrasion, should be strenuously avoided.

The imminent danger of typhoids to tuberculosis is conceded by all, and every precaution should be taken to prevent infection through contact with phthisical patients or nurses, or through confinement in rooms occupied by them, or through utensils or food which might furnish the infection; and when there is reason to suspect latent tuberculosis, the use of all anti-tubercular measures is recommended.

The treatment of typhoids and phthisical patients in the same hospital ward is little short of criminal, and the employment of tubercular nurses, attendants, or cooks, or ward-servants is incompatible with the

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present state of our knowledge of tubercular ætiology.

As typhoids are more than ordinarily susceptible to all contagious diseases, they should be rigorously excluded from direct and indirect contact with diphtheria, erysipelas, and all wound diseases; the most thorough cleanliness should be observed about their person, and the towels, bedding, and utensils should be beyond reproach.

In the care of the lips, the tongue, and the nose, care should be taken that no abrasions be made which might open a way to secondary invasion.

So-called relapses are often due to a secondary mixed infection. Therefore, in all cases of relapse, careful, diligent, and, if necessary, repeated search should be made for foci or infection which could give rise to the symptoms of relapse or any anomaly of temperature.

When a localization of infection has been discovered, the fact that the patient is, or has been, suffering from typhoid does not interdict the employment of ordinary surgical principles, but furnishes an additional and imperative indication for speedy operative interference, as furnishing the only known means of preventing the most disastrous issue.

NOTES AND LITERATURE.

It is unnecessary to refer to the literature of typhoid from a bacterial standpoint. The battle between mysticism and materialism was fought on the field of Anthrax and Tuberculosis before the real study of typhoid began. The difficulties in staining and in obtaining pure cultures of this microbe retarded its advance into the place it now occupies as the prime ætiological factor of abdominal typhus. Every modern text book on medicine or pathology gives a sufficient history and bibliography of this phase of the disease. The last German edition of Ziegler's Pathology, Klebs' Algemeine Pathologie, and Baumgarten's Lehrbuch der Pathologischen Mykologie are especially recommended.

Gottstein says that the complications of typhoid are not caused by the typhoid bacillus, but by the various pus-microbes. The importance of these complications may be inferred from the space devoted to their consideration by the systematic writers and in the current literature. More than ten quarto pages are devoted to the articles on this subject alone in the Catalogue of the Library of the Surgeon-General's Office. No statistics are available to show the fatality of the complications as compared with the pure disease. Baumgarten (l. c., p. 526) makes the remarkable statement that, under proper treatment, ninety-five or more per centum of typhoids recover.

The fact that the typhoid bacillus does not produce suppuration or other destructive lesion is so well established by numerous observers that the anomalous observation of an encysted suppurative peritonitis by Frankel (Centralb. f. Bact. u. Parask., 1887, I., p. 546) must wait further explanation. He found only the typhoid bacillus in the pus from this peritonitis, which occurred long after convalescence from a typhoid had been established. Baumgarten thinks the pyogenic bacteria had died at the time of the observation (p. 524). Seitz (Bacteriligische Studien sur Typhus Ætiologie, 1886) finds that this bacillus is not pyogenic in animals, although pathogenic in some. Mafucci (Centralb. f. Bact. u. Parastk., 1887, I., p. 149) concludes from experiments on animals that the bacteria are eliminated through the excretory and secretory glands without any destruction to their epithelium or the capillaries.

The most valuable information has been obtained from the following works:

Murchison: A Treatise on the Continued Fevers of Great Britain. Third edition. London. 1884.

Liebermeister: In the Cyclopedia of the Practice of Medicine, von Ziemsen's. American Translation. New York. 1874. Vol. I.

Seitz, Dr. Franz: Der Abdominalty-

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phus nach langjaehriger Beobachtung. Stuttgart. 1888.

Gottstein: Die Verwerthung der Bacterologie in der klinischen Diagnostik. Berlin. 1887.

DeBary and Grawitz: Ref. Centralb. f. Bact. u. Parastknd. 1887.

Dunin: Ueber die Ursache eiteriger Entzündungen und Venenthrombosen im Verlauf des Abdominaltyphus. Deut. Arch. f. klin. Med., XXXIX, pp. 369–392.

In an epidemic of typhoid in which complications were numerous, he made many examinations and cultures from the suppurative products, and found, in all cases, the pyogenic microbe. While his method leaves much to be desired, it is a very complete demonstration of the true cause of these accidents which had been previously only conjectured.

Metschinkoff: Phragocitic microbes in the relapses of Typhoid Fever. Virchow's Archive, Vol. 105–109, 1887–88.

W. H. Thompson: Diphteritic Paralysis. *Medical News*, June 9, 1888, p. 630.

CONDITION OF THE MESENTERIC GLANDS.—Before any secondary infection has taken place, they are enlarged and filled with the typhoid-bacillus, which is never found within the cell elements (Klebs, Baumgarten, and Liebermeister). In a few cases post-mortem examination has discovered the suppuration of these glands resulting in large abscesses, but there is abundant evidence that perforation does frequently take place in an intestine and recovery follow. Such is probably the explanation of the case of a late interne at the Cook County Hospital, who began to suffer a relapse two or three months after typhoid. Besides the peculiar renal and cerebral symptoms which he suffered, his temperature was not characteristic of typhoid, and, at last, a considerable amount of pus was discharged from the bowels. This was occasionally repeated after exacerbation of the symptoms throughout the course of a year or more.

Jenner (*Medical Times*, Vol. XX) records a case where perforation into the peritoneum followed suppuration of a mesenteric gland.

Andral (*Clinique Medical*, Paris, 1834, I, p. 599) observed the correspondence between the degree of ulceration in the intestinal (Peyer's) lymphatics and the engorgement of the mesenteric glands, and says that MM. Petit and Serres have compared this engorgement to that which follows in the crural and axillary glands in infection in the area tributary to them.

THE LUNGS.—Although the infection of the typhoid bacillus produces a pneumonia, it invariably tends to speedy recovery, and is observed only early in the disease. When, however, the secondary infection appears, the symptoms are of a much graver character, depending on the destructive power of the pyogenic infection.

Liebermeister (p. 172) calls attention to the fact that severe and fatal embolic pneumonia occurred in Bâsle when the hospital was overcrowded and in bad condition. This symptom disappeared when these defects were corrected.

This secondary pneumonia is ætiologically a unit, whether it appears as abscess, or gangrene, or suppurative bronchitis, and each may or may not be accompanied by suppurative pleuritis.

As we should expect, this disease appears about the third or fourth week. The lungs and the pleural cavity may become infected with putrid and gas-forming bacteria through the inspired air. (See a case by Witkowski, Virch. and Hirsch, *Jahresbericht*, 1872, II, p. 239, and Delafield, *N. Y. Medical Record*, 18—(?)

Pleurisy is not infrequent (Liebermeister, p. 173). It was observed in sixty-four out of 1,743 cases at Bâsle, of which twenty-one came to section.

INFECTION OF GLANDS BY WAY OF THEIR DUCTS.—All authors mention the frequent occurrence of parotitis, often in the course of a general pyæmia, but more often as the only evidence of infection. Careful study of parotitis, as it occurs in other conditions, leads me to think that the infection

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by way of the duct is not the rule. Stephen Paget (*Lancet*, 1886) attempts to establish some relation between the pelvic organs and the parotid gland. He remarks that parotitis is frequently the only secondary lesion to injury or operation upon the pelvis. He has collected sixty cases, including ten of Goodall's, only a few of which manifested any symptoms of pyæmia. I am inclined to think that the determination of infection in the parotid gland will be found to depend on some histological or physiological peculiarity of the gland, inviting the formation of thrombi.

Suppuration of the gall-apparatus is certainly occasionally noticed post-mortem, but oftener symptoms referable to inflammation of the common duct are recognized during life. Both of these conditions are dependent on the invasion of some form of bacteria, either alone or assisted by protozoa, during the depression of the typhoid disease.

In a few instances the pancreas has been found inflamed. In no case do I find that suppuration has been actually observed. There does not seem to be any reason why it should not occur (Andral).

Other small glands may become infected in the same manner. The middle ear thus becomes the seat of suppuration through the invasion, by way of the Eustachian tube (Seitz, 85).

This inflammation may invade the temporal bone, and suppurative meningitis or abscess of the brain result (Murchison, p. 561).

Joints and Other Serous Cavities.—A concise statement of the ætiology and clinical appearances of joint diseases in the course of convalescence of the acute infectious diseases, is given by Max Schueller (Die Pathologie und Therapie der Gelenkentzündungen, Wein u. Leipzig, 1887), with a full account of the literature. The large joints are most affected. Usually the invasion takes place late (19th to 60th day) in the disease. It is certainly rare, as in 3,130 cases in Vienna, Guttenbock found only two complicated by joint disease (Arch. f. klin. Chir., XVI, p. 61). Barwell (Diseases of the Joints, N. Y., 1881, p. 79) says that he has observed a large number of cases of this rare disease. He notices a painless mono-articular variety, and a painful poly-articular variety. If this is really the case, it does not seem difficult to account for the difference. The former is probably a tubercular or attenuated pyogenic infection, while the latter is a more destructive and virulent form. Murchison considers joint affection a sign of a fatal termination of the typhoid disease. Langenbeck (Akiurgie, p. 155) says that suppuration of the knee-joint as a complication of typhoid is an indication for resection, and Hager (Deut. Zeitschr. f. Chir., XXVII, p. 155) mentions two cases treated by antiseptic irrigation of the joint.

The bursæ in various parts of the body are only rarely mentioned as the seat of secondary invasion. I can find no case where it was not a part of a general pyæmia. There is no doubt that it does occasionally occur separately, but is then not considered of enough account to require mention.

Pleurisy, pericarditis, and peritonitis are more frequently mentioned than meningitis, but no one of them is often found as the only locus of infection.

Bones and the Large Organs of the body.—Cases of bone disease originating in the course of typhoid are mentioned by all authors. Murchison (p. 584) has observed in his own practice two cases of disease of the tibia, one of the femur, one of the temporal bone, and two of the lower jaw.

Old bone diseases frequently break out during typhoid, and scars that have been long healed open spontaneously and suppurate (Liebermeister, p. 146). These phenomena may be due to the germination of lasting spores, or to the localization of infection in the non-resisting scar. The same thing occurs in the pelvic cellular tissue (Zeigler, l. c., II, p. 894).

Abscess of the liver is a very common

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and fatal complication of typhoid (all authors). Two forms are to be considered: One, the result of infection through the portal circulation, appears early (7th to 11th day) in the disease, and is followed by pyæmia, or. especially, embolic pneumonia, and the other, due to arterial capillary thrombosis or embolism, appears as late as the third or fourth week, or long after convalescence has been established. Bender (*Lancet*, Oct., 1874) and Burger (Arch. f. klin. Med., XII, p. 623) have recorded cases of the former, and many authors of the latter (Murchison, Liebermeister etc.)

Abcesses of the brain are not very rare, though they do not often attain any great size (Gowers, Diseases of the Nervous System, 1888, p. 1215). They are mostly miliary and very numerous (Popoff, Virch., Arch., Bd. 87). One of the first operations for abscess of the brain is reported by Heineke (Die chirurgisch. Krankheit des Kopfes, p. 99). It occurred after a typhoid, and is supposed to have ended in recovery.

Suppuration of the thyroid is of unusual frequency. It occurred six times in 1,700 cases of typhoid (Liebermeister, p. 174). This frequency can hardly be accounted for by the size of the gland, and must depend on some anatomical peculiarity.

Infection of the bronchial and mediastinal glands by way of the larynx is of rather rare occurrence, but of a very fatal character. It is accompanied by œdema of the glottis, and often extensive destruction of cartilage (Seitz, pp. 85, 86). Murchison (p. 558) says that it appears to be very common in Germany.

All authors agree that bubo is more frequent after typhoid in the axilla than in the groin or in other packets of glands. This can, perhaps, be accounted for by supposing infection of the fingers and hands to take place from the mouth by biting the nails and picking the lips and teeth. In the Library of the Surgeon-General's Office, are three monographs on Axillary Phlegmons.

Hæmorrhagic Infection (Ceci).—In diphtheria the unfavorable significance of repeated hæmorrhages from the nose has long been recognized by all clinicians. It has been shown by Klebs (p. 199) to be due to a secondary specific infection which he asserts is often the cause of epistaxis in typhoid. The same form of infection has been noticed in other localities. Frequently an intercellular hæmorrhage has been observed in the new-born which has been attributed heretofore to the "hæmorrhagic diathesis." Ritter has demonstrated it to be due to hæmhorrhagic infection through the umbilical wound. That the intestinal hæmorrhages of typhoid are due to the same specific microbe has not, so far as I know, been proved by cultures. Seitz (Case 51, p. 185) gives an account of a case in which severe pain in the stomach in the third week was followed by repeated gastric hæmhorrhages. Murchison (p. 530) mentions a case in which intestinal hæmorrhage took place from diffuse spongy patches of excrescences firmly attached to the intestinal wall. The mesenteric glands and the spleen were enlarged. When hæmorrhage occurs in many places besides the bowel, the typhoid has been clinically termed "hæmorrhagic putrid fever" (M., p. 527). Out of 107 cases of epistaxis mentioned by Liebermeister (p. 175), fourteen cases were accompanied by hæmorrhage from other parts of the body, especially from the bowels. It usually occurs in young people, who are known to suffer most frequently from hæmorrhagic infection in other diseases. The appearance of the hæmorrhagic infection is sometimes alarmingly rapid. Ruggein (Virch. & Hirsch's Jahresberischt, 1872, II, p. 237), records such a case. An eighteen-year-old man was suffering a rather mild course of typhoid, when in the second week he was prostrated by an intestinal hæmorrhage accompanied by hæmhorrhages from every observable surface of the body. All the secretions and excretions were bloody. Nevertheless convalescense began in the fifth week.

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GAS-FORMING BACILLI (MALIGNANT ŒDEMA).—Although emphysema is frequently the result of an ulceration and perforation in those parts of the respiratory apparatus from which the atmospheric pressure is removed in inspiration (Murchison, p. 557) there are cases in which a secondary infection with a gas-producing bacillus is perfectly demonstrated.

Such an infection was observed by Meigs (*Philadelphia Medical Times*, Oct. 5, 1872), in which the liver was emphysematous throughout before death, and the case came to post mortem on the fourteenth day.

DIPHTHERIA.—Murchison (pp. 558–588) mentions three cases by Louis, two by Forget, and six by Rilliet and Barthey, and one of his own observation. In this case diphtheria appeared on the thirtieth day, and a local infection of the pus-microbe produced a post-coracoid abscess. Other illustrations are not wanting in the literature.

NOMA.—This has been observed by most systematic writers as an extremely rare complication. Murchison has met with it once. Greissinger noticed only one in 600 cases of typhoid. Out of eighty-nine cases of noma observed by Tourdes seven followed typhoid fever. West observed two similar cases. (See Murchison and Liebermeister.)

ERYSIPELAS.—This usually appears in an advanced stage of the disease (Murchison, p. 582). It appears in about 1 per centum of all cases. Seitz has rarely seen erysipelas in the early weeks of typhoid, but often in the later weeks or in convalescence (page 104).

TETANUS.—One of the most frequent and fatal of mixed infections in wound diseases is tetanus, which is also occasionally a complication of typhoid. Seitz (Cases 11 and 12, pages 80–83) gives the history of two cases, the result of which indicates that it is not always fatal.

TUBERCULOSIS.—Murchison observes that tuberculosis of the lungs is more common after typhoid than after typhus, and that tubercle ought always to be feared when hectic fever and bronchitis persist after the fourth week. Louis records four cases of fatal typhoid in which the lungs were studded with recent tubercles, and Bartlett observed long ago that consumption is a frequent sequela of this disease. Trouseau (*Union Medicale*, 1859) records cases of tubercular meningitis after typhoid. Harley and Kennedy (Murchison, p. 462) have even considered typhoid and tuberculosis dependent upon the same ætiological factor.

125 STATE STREET.

FOUR CASES OF SURGICAL KIDNEY.

BY I. N. DANFORTH, A. M., M. D.,
Professor of Renal Diseases in The Woman's Medical College.

CASE I.—On the 18th of February, 1879, I was called to see Mrs. I., an Irish woman, aged thirty-eight, married, but without having borne children. She was sitting upon her bed, propped up by pillows, and partly supporting the weight of the upper half of the body upon her clenched fists. Her room was without a window; the atmosphere was saturated with the odor derived from a dirty kerosene lamp and from the exhalations from a livery stable immediately under her. Her face was pinched with agony, and as I entered the dark and fœtid room, she had a paroxysm of hysterical weeping. She soon regained her composure, however, and I then elicited the following history of her case: About five years prior to my visit, while under an unusual strain of hard work in a restaurant, she contracted acute cystitis, and suffered the usual symptoms, namely, incontinence, dysuria, hæmaturia, etc. After trying various domestic remedies and patent nostrums, she called in a practitioner of the "irregular" sort, who promised her a speedy cure. His treatment was both general and local, the latter being vigorous, to say the least. It was as follows: Introducing a steel sound into the bladder, he attached one pole of a galvanic battery thereto, while the other pole was placed over

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the bladder just above the pubes He then passed a current through her bladder for nearly half an hour. The effect was intense pain, with cystic tenesmus, hæmaturia, and immediate intensification of all her symptoms. From that time until I saw her, she was treated by various practitioners, and by every local and general means which the books suggested or ingenuity could devise. Nevertheless, in spite of treatment, or in consequence of it, she steadily grew worse until she had reached the miserable condition in which I found her. She was thin, pale, and sallow, and very much emaciated. Her digestion was exceedingly poor; her bowels obstinately constipated in spite of the almost constant pelvic tenesmus, and she was troubled with frequent attacks of nausea and vomiting. Between trying to urinate and trying to resist urination, she was kept busy night and day, so that she got scarcely any restful sleep. Her urine was rather scanty, intensely alkaline, strongly ammoniacal, and emitted a very offensive odor. It was heavily loaded with pus, phosphates, and sodic urate; it also contained a little albumen, and a large amount of mucus. The microscope showed pus-corpuscles in every stage of growth and decay, epithelial cells in large numbers from all parts of the urinary tract, considerable amorphous granular matter, a few large short casts from the straight tubes, much eroded from maceration in alkaline urine, and crystals of the saline constituents already mentioned. At this time I did not suspect any grave lesion of the kidney, and I commenced treating her for chronic cystitis. But in a short time I noticed that while she complained of pain everywhere, it still seemed to focalize in the right lumbar region. I therefore proceeded to make a careful physical examination of that portion of the body, with the following results: The costo-iliac space was tender to pressure, and dull on percussion, and I could map out quite distinctly an irregularly roundish tumor, which seemed to be about twice as large as a normal kidney. There was also some tenderness along the course of the right ureter, and pressure upon both the kidney and the ureter seemed to exasperate the bladder and intensify the desire to urinate. A few days later I learned that there seemed to be an intermittent flow of pus; that when the amount of pus was at its maximum the pain in the right side was complained of the least, but whenever the amount of pus in the urine began to diminish, the pain in the right kidney was increased *pro rata*, and all other symptoms were intensified. I now concluded that the patient had what is known as *intermitting pyonephrosis*, and that the symptoms of the renal lesion had been masked by the much more prominent and urgent symptoms emanating from the bladder. I also concluded that the only promise of permanent relief was by means of an operation upon the diseased kidney. With that end in view, I sent her to St. Luke's Hospital, where (it being a charity case), she passed under the care of my colleague, Professor John E. Owens. We examined the case together, and arrived at the concurrent opinion that an operation was urgently demanded, and decided to operate at once. The operation was accordingly performed by Professor Owens, assisted by Professor Gunn and myself, and in the presence of several other members of the hospital staff.

The initial incision was made along the outer border of the erector spinæ muscle, and extended from the iliac crest to the lower border of the last rib. No difficulty was experienced in reaching the kidney, which upon being exposed was found excavated and occupied by many pus-cavities, so that it was practically a multiple abscess. The surrounding tissues were not very much indurated, and there were no adhesions which rendered ablation of the kidney impracticable. But as the operation of nephrectomy was then somewhat new and untried, at least, among our local surgeons, it was thought best to open the kidney upon its dorsal aspect, irrigate it thoroughly, establish free drainage, and give it the best

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chance to repair itself by granulation. At the suggestion of Professor Gunn the renal cavity was packed with crystals of boric acid, after the proper insertion of the drainage-tube. The wound was then brought together with sutures and dressed antiseptically, and was irrigated daily with a five-per-centum solution of carbolic acid. There was a continuous discharge of pus, which at first was thick and grumous, but afterward became laudable. The amount of pus in the urine gradually diminished, until it got to be hardly noticeable. The patient gained strength, increased in weight, and was out of bed within three weeks after the operation. She left the hospital, contrary to the advice of her medical attendants, about six weeks after the operation. At that time the wound had not entirely healed, but was granulating nicely, and bid fair to close up entirely in a few days.

About two weeks after she left the hospital, she very unwillingly went to ride with her husband. They took a long drive on the lake shore, were caught in a violent storm, and she returned home thoroughly exhausted, chilled, and wet to the skin. The following day she was seized with a severe rigor, followed by an accession of fever, scanty urine, which was tinged with blood and loaded with albumen, œdema of the face and lower extremities, and slight indications of coma. In spite of treatment, these symptoms rapidly grew worse, and she died of *acute nephritis* on the fifth or sixth day after the fatal ride.

Necropsy, twenty-four hours after death: Body fairly well nourished; *rigor mortis* fully developed; brain and spinal cord not examined; heart, lungs, and large vessels normal. Liver slightly enlarged, otherwise normal. Stomach and alimentary canal in healthy condition. Uterus and its appendages healthy. The right kidney was shrunken to a mere shell, averaging a little more than a quarter of an inch in thickness; its walls were very irregular, however, measuring in some places more than half an inch in thickness, while in other places nothing was left but the thickened capsule.

There were no pus-pockets found in the organ, but a few small-sized masses of "mortar-like" material, which probably occupied the sites of former pus-cavities. It was impossible to distinguish the different structures of the kidney, but as nearly as we could judge the cortical substance was nearly, or quite, destroyed. The kidney was pretty firmly imbedded in a growth of newly formed connective-tissue, but it could be enucleated without much trouble.

The ureter was funnel shaped, with the mouth of the funnel upward, and was much dilated throughout its full extent; its walls were thickened, and the tube was much longer than normal. Upon laying it open we found several patches of ulceration of its lining membrane. The bladder was very much contracted; indeed it seemed to be in a state of permanent spasm; its cavity would not contain more than two fluid ounces of urine, and even that quantity produced a degree of distension which would have been painful during life. The walls of the bladder were very greatly thickened, the mucous membrane rugose, and the sulci between the corrugations were deeply ulcerated. The urethra was thickened, contracted, puckered into longitudinal folds, and ulcerated.

Upon looking over the history of this case, I am impressed with the idea that it was an exceedingly favorable one for operative treatment, yet the patient died. But the circumstances were mainly against us. In the first place, the operation was not performed as soon as it ought to have been by, perhaps, a couple of years; hence, when it was performed the ureter and bladder were practically destroyed. In the second place, she left the hospital at least two months too soon, and then contracted *acute nephritis* by unwise exposure. I am persuaded that an earlier operation, and perhaps a more radical one, supplemented by absolute control of the patient for a sufficient length of time

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afterward, would have resulted in a permanent cure. In fact the immediate results of the operation were all that could be expected, and the patient was slowly approaching perfect recovery when she encountered the undue exposure which induced her fatal illness.

CASE II.—On the 8th of July, 1885, I was called to see M. W. P. in consultation with Dr. Dewey, his attending physician. The patient was a remarkably well developed and athletic young man, a lawyer, aged 29. He had always been healthy and strong, and much given to athletic sports. During his college days he frequently engaged in gymnastic exercises, and was the champion athlete of his class. He took particular delight in the "spring-bar" exercise, which calls for violent efforts on the part of the lumbar and dorsal muscles, as well as those of the upper extremities. During one of his periods of exercise, he felt a sudden "strain" in the right lumbar region, more especially in the costo-iliac space. Shortly after, he began to have paroxysmal attacks of pain in this region, not very violent or frequent at first, but gradually increasing in both violence and frequency. He had experienced two or three attacks of great severity, so that on each occasion he was obliged to abandon business and take to his bed. At the time of my visit, he had just returned from a journey of three or four hundred miles. He was attacked while away and was in constant pain on the homeward journey, and went from the sleeping-car to his bed. I found him with a temperature varying from 99° to 101° Fahr. from day to day, with a clammy tongue, impaired appetite, constipated bowels, and with a well-defined area of tenderness over the region of the right kidney, where he also suffered a nearly constant, dull, heavy pain. I failed to detect any tumefaction of the kidney by palpation or percussion, but bimanual pressure (by grasping the loin between the two hands) developed an area of well-defined tenderness. At this time no fluctuation could be detected. I examined the urine with the following results: Specific gravity, 1.018; reaction slightly acid; albumen, a slight cloud, hardly enough for volumetric measurment; sugar, none. The urine was cloudy with mucus, and rather paler than natural. The microscope showed renal and pelvic epithelia in large numbers, isolated and in patches, especially the linear patches or cylinders from the papillary portions of the straight tubes so common in inflammation of the renal pelvis. I also found a great number of pus-corpuscles, some granular matter, but no tube-casts. I concluded that the case was one of suppurating kidney (pyonephrosis), and that the prognosis was grave. I also stated to the attending physician that an operation would be required. About the middle of August fluctuation became quite distinct over the right kidney, and about two fluid ounces of thick, malodorous pus was withdrawn by the aspirator. From this time forward, the patient's condition grew steadily worse; the pain increased; the appetite failed; the tongue became heavily coated; he lost flesh rapidly; night-sweats occurred; the area of tenderness extended, and the whole aspect of the case was discouraging and alarming. Meantime the patient had been treated according to the varying indications, but without any successful results. Having made up my own mind that an operation was unavoidable, I asked that Professor John E. Owens be called in consultation, which was done on September 16. Professor Owens fully agreed with me as to the necessity for prompt operative measures. Accordingly, on the 22d of September, I operated, with the assistance of Professor Owens, Dr. Frank Cary, Dr. Dewey, and Dr. J. H. Bartlett. The line of incision was nearly vertical, along the outer border of the erector spinæ muscle; the kidney was reached without dificulty, and was found firmly united by adhesions to the peri-renal tissues, the latter being much condensed and indurated. The renal cortex was thinned by prolonged suppuration

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—in fact, at the point where my dissection reached it, it was but a mere shell of condensed cortical tissue. Upon incising the kidney, there was an escape of thick fœtid pus, perhaps half an ounce in quantity. A free incision was now made through the cortex with a blunt bistoury, using the index finger as a guide. There was but little hæmorrhage, except from a single vessel, but that was easily found and tied. Upon exploring the interior of the kidney with the finger, I found that it was practically *a multiple abscess;* it was beset with pus-pockets in all directions, and these pockets were filled with thick pus, containing gritty masses of urinary salts, and the so-called "mortar-like" matter of Roberts. These cavities I freely opened by perforating them with the finger, and the result was one large ragged cavity in place of many small ones. This cavity was now thoroughly irrigated with a carbolic-acid solution, a large drainage-tube introduced, the wound packed with iodoform-gauze and brought together with deep sutures, except at the lower angle, whence the drainage-tube issued. The patient rallied promptly, and progressed rapidly toward recovery.

The subsequent history of the case is but a simple story of recovery without any untoward incidents.

The temperature never rose above 101.5° Fahr.; the wound healed kindly; the urine was slightly bloody for a few days after the operation, after which it rapidly improved as regards pus and other pathological products; the patient regained his digestion and recovered his strength, and on the 21st of December, following the operation, he went to a distant city to pass the remainder of the winter. On the 20th of April, 1886, he called upon me, having just returned home. He presented the appearance of stalwart health, but complained of some lameness at the seat of the operation, especially if he attempted much muscular exercise. The urine was of normal specific gravity and reaction, but contained a trifle of albumen. There was considerable whitish deposit, consisting of renal, pelvic, and cystic epithelia, leucocytes, mucin casts, and some granular matter, but I found no fibrinous or hyaline casts. These symptoms slowly disappeared; he resumed his business gradually and continuously, and at the present time seems to be in perfect health, the albumen having long been absent from the urine, and the urinary sediment being scarcely noticeable.

CASE III.—On the 18th of December, 1886, I was called in consultation by Professor J. H. Salisbury, M. D., to visit Mrs. H., an intelligent lady, who gave me the following history of herself. Her age was forty years; she was married, but had no children; she was a native of this country, and her life had been spent in the ordinary duties of a housewife. Eighteen years prior to my visit the patient had been thrown from a buggy, the seat of which fell upon her right side, fracturing the two lower right ribs. There was intense pain at the seat of injury, but no hæmaturia or other indications of renal injury. In due time there seemed to be complete recovery and entire relief from pain. About seven years after the accident Mrs. H. had a severe attack of pain in the right side, coming on suddenly. The pain was very intense, and required the administration of an anodyne for its relief. This attack was followed by others, occuring once in two or three months, but gradually becoming more frequent and severe. She always located the pain in the right ilio-costal space, and it was accompanied by great tenderness on pressure. With, or, more correctly, following, each attack, there was a partial paresis of the right side, so that locomotion was dificult and painful, and there was a sense of numbness perceptible in the whole right side, including the right half of the tongue. During the paroxysms, respiration was impeded, and sometimes was very difficult and painful. For the past four years these attacks occurred more frequently, and increased in severity and duration, so that her health had been seri-

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ously impaired by exhaustion and suffering. They were accompanied, during this latter period, by frequent and sometimes painful urination, and by other sypmtoms of irritable bladder. The urine had long been loaded with pus to such an extent that half a pint of it has been passed with the urine in thirty-six hours. But during the attacks of ilio-costal pain, the pus had either disappeared or diminished to an insignificant quantity, the pain continuing and increasing in severity, and the urine remaining clear until she would suddenly feel something "give way" in her side, the pain would quickly leave, and pus in great quantity would re-appear in the urine. For some hours after the subsidence of the pain, she would experience frequent and urgent calls to urinate, and the fluid evacuated would consist largely of pus. This was the history of the case down to the time I was called by Professor Salisbury, namely, December 18, 1886.

At my first visit I found the patient in bed, in the midst of one of her attacks. She complained of constant heavy, dull pain in the right renal region. Her temperature varied from one to two degrees above normal. She had little appetite, and her digestion was imperfect; she had constipation, followed frequently by diarrhœa; the flow of urine was rather small, but at that time did not seem particularly abnormal to the naked eye. The microscope showed a few pus-corpuscles, epithelia, also, from the kidney and bladder, but no tube-casts. The urine also contained a very small amount of albumen, and an excess of phosphatic salts. Upon examining the patient I found a very distinct tumor in the right ilio-costal space, which extended from the iliac crest to above the level of the last rib, and latterly it extended nearly to the median line. It was tender to the touch, seemed to be rather indistinctly lobulated, gave distinct evidences of fluctuation over a portion of its area, and within certain limits was easily movable. I concluded it was a cystic kidney of the "intermitting" type; that it was much injured by the encroachment of the process of suppuration, and that an operation would be required before any substantial relief could be expected, and this opinion was fully concurred in by Professor Salisbury. A few days after, the accustomed gush of pus came, she was speedily relieved of the constant dull pain, whilst the size of the tumor had diminished.

The patient and her friends finally consented to an operation, and on the 12th of March she entered St. Luke's Hospital for the purpose of having some radical operation performed.

At that time her condition was as follows: She was cheerful; her digestion was good; bowels regular; her sleep was refreshing, and temperature was not above 99.4° Fahr., while the pulse ranged from 80 to 90. She was somewhat emaciated, looked anæmic. Her nervous system was somewhat shattered by the long-continued exhaustion by pain and suppuration. Examination of the urine after her admission into the hospital showed the following results: Specific gravity 1.020; reaction intensely alkaline, so that it took 17 minims of acetic acid (of the U. S. P.) to acidulate ten fluid drachms of urine. The urine remained turbid after filtering from presence of mucus there was a slight amount of albumen present, perhaps a little more than the pus accounted for. The microscope showed crystals of urates of soda and triple phosphates in large amount, disorganized pus-corpuscles in great numbers, and epithelia of the bladder, pelvis of the kidney, and collecting tubes; no tube-casts were found. The tumor in the right ilio-costal space was quite prominent, very easily defined, and somewhat tender upon pressure. Two or three days after her admission, I requested my colleague, Professor John E. Owens, to examine her with me. Upon comparison of our views we fully agreed that an immediate operation was necessary. Accordingly, on the afternoon of the 19th of March, assisted by Professor

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Owens, Dr. Frank Cary, Professor Salisbury, Dr. L. B. Hayman, and the house staff, I operated, as follows: An incision was made reaching from the crest of the ilium to the lower rib, a very little to the right of the erector spinæ muscle. The dissection was continued layer by layer until the kidney was reached; it was found surrounded by fatty tissue, which was torn apart by dressing forceps and the fingers. The pelvis of the kidney was found fully distended and the whole organ much enlarged, but there were no adhesions, nor any indications of renal calculi. The organ did not seem to be so much damaged as we expected to find it, and the lesion was mostly located in the pelvic and medullary portion of the kidney, leaving the cortex comparatively unharmed. We therefore thought it best not to attempt the removal of the kidney, but to open the pelvis, irrigate the cavity, and establish drainage, which was accordingly done. An incision about two inches in length was made in the pelvis, the cavity was evacuated of its pus and putty-like matter; the kidney was explored by the finger, but no pus-pockets were found; a drainage-tube was inserted and stitched into the pelvis of the kidney with catgut. The lumbar fascia was next closed by continuous suture of catgut, and the wound then brought together by deep sutures. Reaction came on slowly, but without any bad symptoms, and the patient passed a comfortable night following the operation. For the next few days the current history showed that the patient was restless, nervous, had considerable pain, and required anodynes hypodermically quite frequently, yet she took a good allowance of nourishment, passed a normal amount of urine, and her temperature never rose above 102.2°. The wound was irrigated daily with carbolized water, and the reparative process went on without any difficulty. The urine passed freely through the drainage-tube, but the amount gradually lessened, until after three or four weeks but very little passed that way. The condition of the urine steadily improved, the pus diminishing, the alkalinity lessening, until on the 4th of April, I find the following note: "Urine, specific gravity 1.020; reaction, acid; no albumen; very little sediment." Four weeks after the operation the drainage-tube was removed for the first time. The renal extremity was found coated with urinary salts, showing that it had remained in the renal cavity. Its place was supplied by a tube of smaller size, which was now removed and cleansed every day. The fistulous tract closed in a short time firmly and soundly; the external wound healed rapidly and kindly, and the urine improved daily in its appearance, the amount of sediment lessening, the quantity of urine being about normal, and the general condition of the patient improving in every regard. She remained in the hospital until the 1st day of June, gradually improving in health and slowly gaining flesh during this time. At the date last mentioned she was discharged and went into the country where she spent the summer. I did not see her again until about the 1st of March of the present year, when she called upon me. Her condition had changed marvelously; she had gained in flesh and strength and looks now the picture of health. I procured a specimen of the urine and examined it with the following results: Specific gravity, 1.020; reaction, acid; no albumen; no turbidity from the presence of mucus; very little sediment. Examination of the sediment with the microscope showed a few mucous corpuscles and some epithelium from the bladder and kidney. She states that she has occasionally a little dull, deep-seated pain over the region of the kidney, but it is so slight that it causes her no inconvenience, and probably would not be noticed at all if she were not aware of the fact that there had been in that locality a disease of the kidney. The results of the case may therefore be considered satisfactory in every way.

CASE IV.—On the 13th of December, 1887, I was called in consultation by my

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friend, Dr. J. E. Stubbs, to visit Mr. J. P., a resident of Milwaukee, Wisconsin, but staying at a hotel in this city.

The history of the case was rather meagre, but I was able to obtain the following particulars:

The patient's age was thirty-four years; height, about five feet and eight inches; weight, 155 pounds. He had always been temperate; had never used tobacco to excess, and had never had any venereal diseases. He had lived an active, driving, mercantile life, which involved a great deal of travel and exposure. When he was eleven years old he fell down a rough and precipitous hill-side and received a number of contusions thereby. As a consequence of this he was confined to bed for a few days, and although he remembered being "sore and lame all over," he did not recall any symptoms of renal or urinary trouble. When he was eighteen years old he had "some kind of a fever," but could not tell what. In the autumn of 1883, he was suddenly taken with a severe pain over the right kidney, which followed down the course of the ureter and invaded the urethra and the testicles. He had rigors, a high temperature, persistent pain, and tenderness over the right kidney, and hæmaturia. These symptoms lasted a few days, and confined him to bed, but they gradually improved, and in course of a fortnight he was able to resume his business again. Since that time, however, he has been subject to oft-recurring attacks of pain in the right side, but not of sufficient violence to send him to bed, except possibly on one or two occasions. He had a severe attack of measles last June; the urine was not examined at that time.

He arrived in Chicago three or four days before I saw him. On the morning following his arrival he walked from his hotel nearly a mile to breakfast with some friends. He partook heartily of food, and after some time spent in social intercourse with his friends, started to walk back to his hotel. On his way, he was suddenly seized with a severe paroxysm of pain in the right illio-costal space, so that he was obliged to hail a cab and ride to his hotel. When, two days later, I examined him in conjunction with Dr. Stubbs, I found him with a temperature of 103° Fahr.; pulse 108; dry tongue; thirst and anorexia, and complaining of great pain and tenderness in the right hypochondrium, which extended through the side to the lumbar region. Upon making a physical examination, I found a distinctly rounded tumor, completely filling the right illio-costal space, and extending forward and inward to the median line. The tumor was spherical, quite indistinctly lobulated, tender upon pressure, easily movable within well-defined but narrow limits. Although it was very tense, a distinct feeling of fluctuation could be perceived. It extended upward to the liver, of which it seemed to be a part; below, it reached lower than the crest of the ilium; anteriorly it could be distinctly felt as far as the linea alba, and by making deep pressure fluctuation could be recognized posteriorly at the border of the erector spinæ muscle. Upon examining the urine I found it loaded with pus and alkaline phosphates, and containing a little albumen (about one-fortieth by volume); it was intensely alkaline and offensively ammoniacal, and the patient was plagued by frequent and intense demands to urinate. I at once concluded that the patient was suffering from suppurating kidney, in which opinion Dr. Stubbs concurred. I advised that aspiration be performed at once, and that it be followed by nephrotomy, if the aspirator demonstrated the presence of pus. Unfortunately this advice was not followed, although it was vigorously supported by Dr. Stubbs. The operation was delayed until the patient's friends could correspond with his former medical attendant, who could not believe that the patient was in the condition represented by me, and who accordingly counseled delay and further consultation with Dr. R. G. Bogue, who

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was called on the 17th. After a most careful and painstaking examination, Dr. Bogue fully concurred in the opinion that an immediate operation was not only justified, but imperatively demanded. We therefore separated to meet on the following morning, September 19, at ten o'clock. At that time the patient's temperature was 102° Fahr.; pulse 108; skin moist and clammy, and the stomach irritable, a condition which was in marked and unfavorable contrast with that which he presented on the 13th. The patient was removed from his bed to an operating table and etherized. There were present, and assisting me, Drs. R. G. Bogue, J. E. Stubbs, L. B. Hayman, and Mr. Stubbs. After anæsthesia was complete, I introduced an aspirator-needle about midway between the point of the lower rib and the umbilicus, and withdrew nearly a pint of fœtid pus, which materially reduced the size of the tumor, although distinct fluctuation could still be detected. It was therefore evident that a radical operation must be performed, and that if performed, a fatal result was by no means unlikely. But after fully explaining to the patient's friends the prospects and dangers involved, it was decided that the patient was entitled to the chances which an operation promised, in spite of its dangers. I accordingly operated, assisted by Drs. Stubbs, Bogue, and Hayman. The initial incision was made about one inch posterior to the anterior superior spinous process of the ilium, extending horizontally upwards to the lower rib. The succeeding muscular and membranous layers were divided as rapidly as possible, but I was considerably hindered and embarrassed by hæmorrhage from the divided planes of muscle. Upon reaching the tumor it was found to be traversed by large veins, which formed a thick plexus all over its surface; the part exposed was tense and fluctuating, showing that the aspirating needle had not penetrated it. An exploring needle was passed into the tumor, which immediately gave exit to a drop of pus. Fearing hæmorrhage if I made an incision into the kidney with a scalpel, the points of a pair of dressing forceps were thrust into the tumor, and I then enlarged the wound a little by inserting a pair of hæmostatic forceps, and forcibly dilating them; this was followed by the insertion of the tip of the index finger, and then of the entire finger. Lastly, the opening was fully dilated by means of the two thumbs placed together, as in dilating the sphincter ani. There was no hæmorrhage of any account, but a gush of not less than a pint of pus. I proceeded next to explore the cavity which had been emptied, and found the "shell" of a kidney enormously enlarged and dilated, but divided into many compartments by dissepiments of pre-existing connective-tissue, answering to the original division into "pyramids of Malpighi." These partitions I tore away as far as I safely could, so as to leave one large cavity. It was my intention to curette the abscess cavity, but the condition of the patient, and the adverse opinion of Dr. Bogue, led me to abandon that measure. The cavity was therefore freely irrigated with a carbolized solution, a large drainage-tube inserted, antiseptic dressings applied, and the patient put to bed in a greatly exhausted condition. Artificial heat and stimulants were vigorously employed; the patient slowly rallied for a few hours, and then without loss of blood or other appreciable cause, he began to sink, and death followed twenty hours after the operation. An examination of the body was not permitted.

It was a sad misfortune that the patient and his friends would not permit prompt measures. I am strongly of the opinion that had the operation been done at once, as Dr. Stubbs and I advised, the patient would have survived it; but the succeeding four or five days of hectic and vomiting were fearfully exhausting, and the result was just what might be expected.

I would not again attempt to reach the

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kidney by the route traversed in this case, not even if I were performing nephrectomy. But for nephrotomy, the lumbar incision, by the side of the erector spinæ muscle, is infinitely preferable for many reasons, which I purpose formulating in a future article.

Lastly, I desire to extend my sincere thanks to Dr. Bogue for his most valuable counsel and assistance.

EDITORIAL.

HIGHER MEDICAL EDUCATION.

The season of the year has come again when the various medical colleges are sending forth their annual announcements, giving a statement of the advantages and the curriculum of each, and their requirements for obtaining the degree of Doctor of Medicine.

It is a gratifying assurance of advancement, for which a large part of the profession has been pleading for years, to see the gradual increase in the number of the older and stronger medical colleges that are requiring evidences of proper mental training for admission to them; that are lengthening the period of study requisite for a degree in medicine; that are increasing their facilities for instruction, and making their examinations more rigid.

The announcements which have come to the *Journal and Examiner* during this season show that some of the more prominent schools to which the profession has been looking to see evidences of their intention to keep pace with the advances that others are making, now show that those institutions are declaring their intentions to do so, immediately or in the near future, and for this they are to be commended.

In the annual address delivered at the last meeting of the Massachusetts State Medical Society, Dr. B. J. Jeffries sought to show how the medical profession has lost some of the position which it held in past times. Extracts from that address appear in another part of this number of the *Journal and Examiner*. Whilst conceding that it is true that never have the opportunities and the facilities for gaining a liberal medical education been so great as at the present time, he believes that the advances made in late years in all walks of life have rendered it incumbent on the physician to make the most of those increased facilities, since more is expected of him.

Without the broad and liberal culture which those facilities can bring, the medical profession must expect to yield some of the position it has held in the learned professions.

That too many had gained access to its ranks who either had not enjoyed those advantages, or who had neglected to avail themselves of them and properly profit by by them, he believed to be one of the causes which have been tending to lower the standing of the whole medical profession in the estimation of the general public. His suggestions for the remedy of this condition, and restoration of the profession to its former proud position, are in accord with the ideas of many others who have been striving to keep our profession in the front in the great advance that this century is witnessing in every phase of life.

The first requisite for this must, of course, be the natural capacity for such work, and the proper discipline of those faculties prior to beginning the study of medicine; then adequate facilities for the right kind of instruction, such as our best colleges now possess, and the prosecution of study, theoretical and clinical, under such circumstances for a sufficient number of years to enable the mind to comprehend the undertaking.

Whilst in an extensive country like ours, with its varying demands upon its physicians, no uniform standard is practicable, yet to maintain the position which all wish to see it hold, the percentage of liberally educated men in it must be large to

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secure that dominating influence which alone can keep the standard high.

The *Journal and Examiner* would offer no discouragement to any of those colleges that are earnestly striving to uphold a high standard, and to well qualify young men for their responsible calling, but it would especially commend the efforts of the colleges, whose age and standing make them conspicuous, that are giving evidence of being in sympathy with the demands of the times for the highest standard of medical attainment that is practicable, and to express the desire that the profession at large, whose support is essential for their fruition, show appreciation of those efforts. At least temporary sacrifices attend such struggles for advancement, but by giving proper support to such as maintain the highest standard, others will be encouraged to do likewise.

Dr. Jeffries might have gone still further in accounting for the assumed lowering of the standing of the medical profession, and stated that the medical colleges are not simply teaching bodies, but that they have the power to confer degrees, and that their degree of Doctor of Medicine, with the assurance given in the diploma granted, entitles the holder of it to practice medicine in most of the States and Territories without question. Should a time ever come when the function of a medical college should be exclusively that of teaching, and the licensing power be vested in an entirely distinct body, whose duty it would be to ascertain the qualifications of candidates for a license to practice medicine, a most unwelcome duty would be removed from the faculties of the colleges, who are now forced to reject many candidates for a degree who have been their own pupils. Whilst there are arguments, and forcible ones, on both sides of this question, it seems not improbable that making colleges simply teaching bodies would result in a higher average of medical attainment and thus bring into the medical profession a larger percentage of liberally educated men who would be able to command the confidence and the respect of the world at large and maintain the high standing of the medical profession, whatever might be that of the other professions to which Dr. Jeffries' address alluded.

NEW ANTIPYRETICS, AND PROPRIETARY MEDICINES.

Until the recent great advances in chemistry and pharmacology gave us the revelations of the laboratory, it seemed as if we were not greatly wanting in antipyretics in the physician's armamentarium, ranging from cold baths to venesection. The introduction of antipyrin and antifebrin and other recent antipyretics seems at present to have almost supplanted those on which implicit reliance had been placed. Will their present claims stand the crucial test of time? Will they prove as free from danger, as safe, as they are now believed to be?

Their introduction has raised another question—one regarding proprietary medicines—a question that has not been wholly decided yet by the great body of physicians in this country. Not unnaturally, American manufacturers of proprietary medicines are asking what makes the difference between proprietary medicines manufactured on the two sides of the Atlantic. Shall American physicians prescribe only such as have been manufactured on the eastern side of that great ocean, and, if so, for what reason? The same objection holds good against all to which a name is given which conveys little, if any, idea of the component parts. Only careful analysis can determine whether published formulæ indicate reliably their ingredients, but the same is equally true, in some respects, of many of the alleged officinal preparations.

It must be conceded that many of the manufacturing chemists, at home and abroad, are furnishing us with preparations that are elegant in form, and apparently

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quite as reliable in composition as many of the officinal preparations that are dispensed, and having a great advantage in being less unpalatable. If sufficient guaranty can be given the prescriber that he can as safely rely upon the accuracy of the published formulæ of these unofficinal as upon the officinal preparations, it is not improbable that they will in future be prescribed with increasing frequency by a large part of the profession, who believe that the active competition between rival manufacturing chemists and the advance in chemistry and pharmacy, have resulted in the production of many preparations of merit, which until recently were wanting.

It is not essential that the names of any of the well-known manufacturing chemists be cited to illustrate the wide difference which exists between them as manufacturers of proprietary medicines and others who are engaged in concocting the nostrums that are vended and popularly known as patent medicines. Their methods of disposing of their productions differ as widely as their products, and although they seek to protect by legal methods the results of their skill and monetary expenditure in a manner that does not obtain in the profession of medicine, the question seems to have been settled, at least by usage, that that fact alone shall not preclude their being prescribed by members of the regular profession on the ground that they are regarded in the light of "patent or secret medicines" as specified in our code of ethics.

If the better class of manufacturing chemists continue to place their products upon the market with the conscientious regard for truth and propriety which has characterized their course in the past, and shall not allow competition to tempt them into the methods by which nostrum-venders seek to dispose of their wares, there need be no more cause for classifying them in the same category than of doing so with the educated and meritorious physician and the blatant, ignorant, and pretentious mountebank.

CONTAGIOUS AFFECTIONS.

Should the present rate of increase in the list of contagious affections be maintained for any great length of time, who can feel secure? The number of those that have for years been known to be contagious, to say nothing of the infections, has been just cause for apprehension, but when there have been added to those the numbers that modern bacteriologists are constantly pointing out to us, and the many avenues by which they enter our bodies, the array seems appalling. Not only does man convey them to his fellowman, but the inferior animals upon which we are so much dependent, and by which we are constantly sourrounded, seem to be so many storehouses filled with pent-up danger to man. The cow, that gives the milk to nourish the child when the mother's fails, must, it seems, transfer to the infant the bacilli of the tuberculosis. The cat with which that child would amuse itself must convey to it the poison of diphtheria. The dog that is the boy's faithful companion not only causes hydrophobia but other dangers through the minute bacteria which he conveys to his confiding playmate. Even man's most trusted horse may give him glanders or actinomycosis as well as other affections; and the animals on which man largely subsists must convey to him trichinæ or other dreadful, even if invisible, danger.

Nature seems unable longer to give pure water to drink, but must instil into it sufficient bacilli of typhoid from unknown or unsuspected sources to cause numerous deaths.

Since freezing the water into ice will not destroy those bacilli, nor freezing cream into the refreshing ice-cream give assurance but that those of tuberculosis have been awaiting that opportunity to enter our bodies by the side of Vaughan's

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tyrotoxicon, whither shall man betake himself that some of these microscopic fiends will not be found in his wake, assuring him, as of old, that where thou goest I will go and where thou lodgest I will lodge.

If our modern investigators continue much longer their revelations no man can feel safe until he has secured for himself a lodging place in a modern crematory.

SOCIETY REPORTS.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF CHICAGO.

REGULAR MEETING, MAY 25, 1888.

The President, Henry T. Byford, M. D., in the Chair.

Professor E. C. Dudley presented specimens of CARCINOMA UTERI AND A DERMOID CYST.

He said: I have two specimens that do not belong to the series of last year's operations, and consequently would like to present them before giving that series.

The first, a uterus removed for carcinoma; and the second, a dermoid cyst. When I first saw the woman from whom this uterus was taken, I found upon the posterior lip of the somewhat enlarged cervix a suspicious patch, so to speak, just posterior to the os externum, about the size of a five-cent piece, and being under the impression that it was probably a cancer, I excised a small portion of it for examination. Dr. Billings, after microscopic examination, pronounced it carcinoma. The uterus was freely movable, and the disease seemed to be confined entirely to this point. This uterus was removed through the vagina, at St. Luke's Hospital, about three weeks ago. No ligatures or sutures were employed in its removal, the hemostasis being effected by pressure forceps. Without hurrying or making an effort to hurry, I had no difficulty in getting the uterus out in about twelve minutes. Some additional time was required in securing the smaller vessels; it was an unusually hæmorrhagic case. When the operation was completed, the vagina was filled with forceps, about sixteen in all, of which the least important were removed in twenty-four hours, the more important in forty-eight, and the most important, on the broad ligaments, in seventy. The patient seems securely convalescent.

An interesting feature of this case is the early recognition of the disease; indeed, we rarely see carcinoma of the uterus in its incipiency, but, on the other hand, the disease has often advanced too far to give promise of permanent cure by hysterectomy. A case more favorable than this for cure could scarcely be imagined.

The next specimen is from a nullipara, twenty-two years of age, married two years ago. She was recently sent to me by Dr. Charles Gilman Smith. Five days ago I removed this tumor, that, as you see, is a dermoid cyst. There is a piece of bone, an abundance of hair, and a very great quantity of fat. The other ovary, which I have here, is cystic, considerably enlarged, and shows the corpus luteum of menstruation.

A peculiar feature of this case was the immense size, length, and diameter of the two Fallopian tubes; they were very œdematous, showing an obstruction in the circulation somewhere. The fluid of this tumor was very thick, ran through the trocar very slowly, and consequently some of it found its way into the abdominal cavity, and therefore, although there were no adhesions, I introduced a drainage-tube that was removed this morning, having discharged quite a large quantity of bloody serum during the three or four days after the operation. The patient gives every evidence of making an uncomplicated recovery.

This patient recovered.

The President showed the following specimens:

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MULTIPLE SUBSEROUS FIBRO-MYOMATA OF THE UTERUS.

This specimen is a typical example of multiple subserous fibro-myomata of the uterus, ranging from the size of a small pea to that of a cocoanut. The enlarged ovaries, with the normal tubes, are hanging high up on either side. Here is a large mass, nearly the size of the fist, that projected down to the pelvic floor, and that had been felt per vaginam as a tumor beside the cervix. It was undergoing calcification. The patient, Mary N., was a negro virgin, thirty-two years of age, who had not menstruated until her twentieth year. Five years ago, a physician diagnosed a tumor of the intestines by external manipulation. The indications for removal were the failure of other treatment, uninterrupted growth, severe and ever increasing attacks of pain, and a location which would have rendered its further development dangerous and its future removal one of extreme difficulty. The menses, although more abundant than formerly, had been coming less frequently of late. This would seem to signify a falling off in activity of uterine and ovarian function, and a final cessation of growth—a result I have often seen in these cases of multiple subserous growths. Had the location and relations of this tumor been different, its removal would never have become a necessity. The broad ligaments and bladder were carried up so high, and were so closely adherent to the mass, that the prevention of excessive hæmorrhage during the formation of the pedicle was difficult, and made the operation long and laborious. After partial separation of the bladder and broad ligaments, a temporary elastic ligature placed around the middle of the tumor, and above the part where I had to work, was of great value in diminishing its vascularity and checking the profuse venous oozing. The figure drawn by Dr. Munde, on page 303 in the March number of the *American Journal of Obstetrics* of this year, represents almost exactly the relations of this tumor, except that the bladder is not shown. After separating the bladder sufficiently, I made an incision over the posterior surface of the pelvic growth, enucleated it rapidly and easily, and threw another elastic ligature around the uterus, at about the level of the internal os. The stump was fixed to the abdominal walls according to Hegar's method, except that I drained the lower end of the wound and surface of the bladder by means of a strip of iodoform gauze, left for three days; and also the bed of the enucleated tumor by a small glass tube above the stump, left for five days. I introduced the pins about half an inch above the elastic ligature, in order to let the cervix down as low as possible. Plain absorbent cotton was used as a dressing to the stump, after Bantock's manner, causing it to become dry and horny, and thus entirely harmless. She recovered without an unfavorable symptom, and took no medicine except a laxative.

UTERUS REMOVED FOR CARCINOMA OF THE CERVIX.

I have here a uterus, with a broad rim of vagina attached, that was removed for cervical carcinoma; also the left ovary, which was four times its natural size, and imbedded in lymph, but not carcinomatous.

The patient, Mrs. O. B., is 25 years old, and has two children, the younger one but two years old. As the posterior wall was infiltrated up to the internal os, and the uterus more rigid than usual in its attachments, I started out to make an exploratory incision in the cul-de-sac of Douglas, and expected, if I found evidences of extension of the disease beyond the uterus, to close the incision and wait two or three weeks before attempting a palliative operation. I dissected and tore my way up between the uterus and rectum, but could not get into the peritoneal cavity. A fibrous band, extending from the posterior cervical wall backward, was in the way. Feeling confident that the uterus, and perhaps all of the disease, could be safely taken out, I carried the vaginal incision completely

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around the cervix, dissected off the bladder, and pulled the fundus forward into the vagina. The fibrous band that connected the uterus with a knuckle of intestine was dried and cut and the cul-de-sac opened from above, the broad ligaments clamped with hemostatic forceps, and the uterus cut out between them. The ovary was then peeled out of its bed of lymph in the left lateral sacral peritoneal pouch, ligated and cut off. The ligatures, which were left long enough to protrude at the vulva, came away in about ten days. The peritoneal wound was left open, and the vagina plugged with iodoform gauze. The forceps were removed in twenty-eight hours, and the tampons in four days. The recovery has so far been uneventful and uninterrupted, and without any medication except a single dose of morphine and the usual laxatives.

Martin, Fritsch, Leopold, and others, have adopted set methods of procedure for vaginal hysterectomy, from which they seldom vary, except in unimportant particulars. Their skill may enable them to do so. My experience with six cases has, however, led me to believe that the safest way for the patient is to vary the operation to suit the case. For instance, in this case I could not have ligated the broad ligaments before anteverting the uterus without working in the dark and greatly increasing the danger. In my third case the uterus was so broad that I could not isolate the broad ligaments until I had retroverted the uterus. In my second case the vulva and vagina were so small, and the tissues so rigid, that I could not readily antevert or retrovert, nor could I draw the organ down so as safely to apply ligatures, hence I applied three forceps on each ligament, cutting the tissues clamped by one pair before applying the next one above. In the first, fourth, and fifth operations I applied ligatures from below upward, scarcely touching or seeing the peritoneum except on the stumps and on the uterus.

The cases all recovered, and it seems to me of much less importance whether or no sutures or forceps are used, or whether the uterus is anteverted, retroverted, or merely drawn down, or whether half an hour or two hours is consumed, than that the operation be properly, carefully, and completely done. To choose the most direct method for the particular case, to handle the tissues carefully, to make sure against hæmorrhage, and to provide an exit for the discharges, makes the best operation and will give the best results.

THE UTERINE APPENDAGES REMOVED FROM TWO CASES BY VAGINAL SECTION.

I wish also to present specimens from two cases of vaginal section, made four weeks ago for the removal of the uterine appendages. You will notice that the organs are not mutilated, and present the same appearance as if removed by abdominal section. In one case the tube was dilated with bloody serum, and resembled an intestine so closely that I made a thorough digital exploration before I ventured to ligate it. The ovary is about the shape of a slice of bread, and fully four times its natural size. The ovary and tube were adherent to each other and to the posterior surface of the broad ligament. Both patients are making a good recovery.

Professor C. T. PARKES: I expected to have two specimens as the result of vaginal hysterectomy with me to-night, but they have not come, and I will refer to them only so far as Dr. Dudley's specimen is concerned. In both cases the manifestation of the disease was not great. In one, at least, the diseased point did not cover a space any larger than in the case shown by Dr. Dudley, and in both of them sections were made and submitted to microscopic examination, and they were shown to be carcinomas. The uterus was removed by vaginal section. I was interested in what Dr. Dudley said about the time at which the cancer was removed. He said that in all the cases of complete removal of the disease, those cases that were removed

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as early as the one shown would be the most promising cases. I remember very distinctly, in both of these operations, on the side in which the disease showed itself the section of the broad ligament with the scissors was not as easily made as on the other side, and when removed the density of the tissue was greater on that side than on the other, creating in my mind the suspicion that some absorption had taken place, although it was not positively detectable; so these cases I shall watch with interest to see if there is any return of the manifestations.

I was somewhat surprised to hear Dr. Dudley say that in this operation, which was done so readily and rapidly, he was compelled to use sixteen forceps. I have done this operation half a dozen times, and in none have I been required to apply more than three forceps, although the bleeding was in each controlled by hemostatic forceps. In these last two cases, the specimens of which I will show at some future time, but two forceps were used; they were long forceps, and embraced the whole length of the broad ligament fairly and squarely, and there was no hæmorrhage of any consequence. Both patients have passed beyond the necessity for further attention, and their recovery is established so far as the operation is concerned.

One point with reference to the removal of the fibroid uterus and the use of the elastic ligature. I remember in one of my cases of removal of the fibroid uterus, of using the elastic ligature as a temporary application to control hæmorrhage. In one case where I applied the ligature—and I speak of it as a warning as to the care required in its use—the section was made low down, and there was very little stump to take hold of after the uterus was removed; I congratulated myself upon the ease with which it was done, and, in the midst of my congratulations, the ligature slipped over the end of the stump, and the stump was at the bottom of the pelvis, and the woman lost a good deal of blood before it could be secured.

I had the honor of reporting a case of successful removal of a good-sized tumor about two years ago. Two or three days ago a lady came into my office, perfectly well so far as her general health is concerned, but with an open sinus in the abdominal wall and through the vagina, with the history that some months ago an abscess formed in the line of the incision, and from the opening she got a ligature. You will remember that in reporting that case I said I had had five cases of removal of fibroid tumors, and the first three died. These three were done by the extra-peritoneal method, and I concluded that was not my forte, and the next case, which was this one, I treated by the intra-peritoneal method, and the woman got well promptly, and until a few months ago was entirely well, until these ligatures came away of their own accord. The other case was also done intra-peritoneally, and she is perfectly well and doing her ordinary work now.

Dr. JOHN BARTLETT: Dr. Parkes refers to the difficulty he got into on account of the slipping of the rubber ligature. He should have indicated the way in which he helped himself out of it. For a moment he vainly sought for the lost pedicle lying deep in the pelvis in a pool of blood; he then thrust the handle of an instrument into the vagina and thus lifted the stump of the cervix out of the pelvis within easy reach.

Dr. E. C. DUDLEY: It is possible that, as far as hemostasis is concerned, the forceps may be safely removed after twenty-four hours, but there are two reasons for leaving them longer. First, the wound secretions, always abundant during the first two or three days, find their way by continuity of surface along the track of the forceps out through the vagina; the forceps, therefore, very effectively facilitate drainage. Second, the tissues grasped in these forceps are certain to slough, and this being the case the sooner the sloughing tissue

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comes away the better. Now, the longer the forceps are left the longer the tissues will be compressed and the more quickly will they slough, and if left two or three days, the tissues in their grasp will come off almost as soon as the forceps are removed, or the forceps may even drop off without being removed at all.

It is better ordinarily not to antevert or retrovert the uterus, because if a carcinomatous cervix is thereby forced into the peritoneal cavity, carcinomatous or septic infection may result. Moreover, when the uterus is anteverted or retroverted, the cervix being in the peritoneal cavity and the corpus being in the vagina, you have the larger portion of the uterus in the vagina, where it is an impediment to the operator.

As soon as the opening is made it is well to force a sponge through it into the pelvic cavity, then another and another. They prevent the formation of blood clots, which it might be difficult to remove. When the operation is done withdraw these sponges, and the toilet of the peritoneum is made. A string attached to each sponge keeps it from working its way beyond the reach of the finger.

I shall never again use the vaginal tampon of iodoform gauze as a last step in the operation. The vagina is an excellent drainage tube if left open, but the tampon impairs its efficacy as such. An antiseptic dressing may be placed over the vulva around the handles of the forceps; if any tampon at all is to be used in the vagina it should be placed between the anterior wall of the vagina and the forceps, not between them and the posterior wall where it would be doubly certain to obstruct the outflow of the wound secretions.

Professor E. C. Dudley read the following paper, entitled A YEAR'S WORK IN ABDOMINAL SURGERY.

The list of seventeen cases which I now report includes all of my work in abdominal surgery in 1887. Eight operations were for the removal of the uterine appendages, seven for the removal of ovarian and parovarian cysts, one for the removal of the uterus through the vagina, and one for the incision and drainage of a pelvic monocyst.

The eight patients from whom the uterine appendages were removed had, in every instance, suffered from recurring pelvic inflammations, which had rendered their lives miserable, for which other means of relief had apparently been exhausted, and for which this operation was a final resort. The results of these operations cannot be as satisfactorily reported now as they might be at a later date.

Cases 2, 8, 14, and 17 have been apparently cured.

Cases 3 and 12 were of nervous, neuralgic patients who had suffered for many years from disorders of nutrition, dyspepsia, dysmenorrhœa, pelvic pains referable to the region of the ovaries, particularly the left ovaries, which were prolapsed, and from various other disturbances which go to make up the symptom group of hysteria. These have been improved, but the improvement has been chiefly confined to the relief from pelvic pain and dysmenorrhœa. It is too early to predict results relative to the nervous aspects of these two cases.

Case 4 was not materially relieved until after the shortening of the round ligaments for a retroversion, which persisted after the removal of the appendages. I am informed that she is now very materially improved, if not cured. Case 5 has passed from my observation, and results cannot therefore be given.

In Case 8, each tube contained not less than four ounces of pus. The ovaries were cystic and enlarged; no adhesions. One tube was brought up into the wound, and its contents drawn off by means of a small trocar, before the ligature was applied. The other was ligatured and removed intact. The tubes were enormously distended, and I think would have burst before long had they not been removed. The peritoneum in the region of the appendages was studded all over with small pearly

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Number.	Residence.	Medical Attendant.	Age.	Married or Single.	Disease.	Operation.	Drainage.	Date.	Recovered.	Died.
1	Danville, Ill.....	Dr. R. W. Gillette.	..	M.	Ovarian tumor.....	Removal of left ovary.....	No.	February	R.	....
2	Chicago, Ill.....	Dr. Charles Gilman Smith.	33	M.	Recurring pelvic inflammation; prolapsed left ovary; extreme retroflexion and hypertrophy.	Removal of uterine appendages	No.	May 7	R.	....
3	Grand Rapids, Mich.	Dr. E. C. Dudley..	27	S.	Recurring pelvic inflammation; prolapsed ovary; salpingitis.	Removal of uterine appendages	No.	June 1	R.	....
4	Chicago, Ill..	Dr. John W. Koehn.	29	S.	Recurring pelvic inflammation; prolapsed ovary.	Removal of uterine appendages	No.	July 2	R.	....
5	Assumption, Ill....	Dr. Rivard.....	34	M.	Inflam. of uterine appendages; recurring peritonitis; retroflexion.	Removal of uterine appendages	No.	July 2	R.	....
6	Rock, Iowa...	Dr. Charleton.....	18	S	Ovarian cyst; exten. adhesions....	Removal of left ovary.....	Yes.	July 5	R.	....
7	Sycamore, Ill.... .	Dr. W. W. Bryant.	..	S.	Parovarian cyst.....	Removal of left ovary.....	No.	July 20	R.	.
8	Thorndyke, Mass..	Dr. G. H. Felton..	32	M.	Double pyo-salpinx; cystic ovaries.	Removal of uterine appendages	No.	Sept. 6	R.	....
9	Princeton, Ill.....	Dr. A. H. Thompson.	30	S.	Pelvic monocyst.....	Abdominal section; drainage..	Yes.	Sept. 26	R.	....
10	Burlington, Vt.....	Dr. Frank Billings.	38	M.	Right parovarian cyst; cystic ovaries; salpingitis.	Removal of both tubes and ovaries.	No.	Oct. 13	R.	....
11	Chicago, Ill.....	Dr. G. W. Webster	38	M.	Ovarian cystomata; universal adhesions.	Removal of both ovaries.....	Yes.	Oct. 17	R.	....
12	Grand Rapids, Mich	Dr. E. C. Dudley..	28	S.	Recurring pelvic inflammation; prolapsed ovary.	Removal of uterine appendages	No.	Oct. 28	R.	....
13	Sandwich, Ill.....	Dr. V. V. Vermilye	23	M.	Parovarian cyst....	Removal of left ovary.....	No.	Nov. 1	R.	....
14	East Saginaw, Mich	Dr. Thrall.....	37	M.	Inflammation of uterine appendages; universal adhesions.	Removal of uterine appendages	Yes.	Nov. 4	R.	....
15	Chicago, Ill.....	Dr. M. L. Scudder.	36	M.	Ovarian cyst; exten. adhesions.	Removal of left ovary.....	Yes.	Nov. 16	R.	...
16	Sturgeon Bay, Wis.	Dr. Sibree.....	51	M.	Sarcoma of uterus; rectal adhesions.	Vaginal hysterectomy..... ...	No.	Nov. 19	R.	....
17	Sturgeon Bay, Wis.	Dr. Sibree.	..	M.	Inflammation of uterine appendages	Removal of right ovary and tube	Yes.	Dec. 24	R.	....

NOTE.—One of the above operations was performed at a private residence; fifteen at St. Luke's Hospital; and one at the Presbyterian Hospital. Fourteen, though in hospital rooms, were private patients.

NOTE.—This list of seventeen consecutive recoveries might be increased to twenty-one by going outside the year 1887.

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points, giving evidence of miliary tuberculosis; no ascites. Dr. Frank Billings, upon microscopic examination of the contents of the tubes, found the bacillus tuberculosis. This is contrary to the statement of an English ovariotomist, who declares that tuberculosis does not exist in the tubes. No drainage was used; perhaps drainage might have been desirable on account of the tubercular disease in the peritoneum.

In Case 17, only the right ovary and tube were removed, the other being entirely absent—a condition which has been observed in other cases. This woman, however, had borne children, and contrary to rule in such cases, the uterus was entirely symmetrical, the left side having been as perfectly developed as the right. At the left horn of the uterus, where the tube should have joined it, there was a slight protuberance, indicating a very rudimentary tube, and at the point of this protuberance, a little depression could be seen, but whether there was a connection between this depression and the interior of the uterus I did not determine. The ovary and tube which were removed were extremely adherent; the ovary was cirrhotic and had been the seat of pain for years.

Of the seven ovariotomies, four were for ovarian and three for parovarian cysts. They illustrate both the gravity and the simplicity of these operations. The parovarian cysts were easy of removal; the others were adherent, and two of them presented difficulties which rendered their removal almost impracticable.

In Case 11, the tumor was so intimately adherent throughout its entire surface that I was unable to break up the adhesions in the usual way, but was obliged to split the cyst-wall, leaving what might be called the capsule of the cyst in the abdomen, stitching it to the abdominal wound. The layers of the cyst-wall were so intimately connected that the greatest difficulty was experienced in separating them. The torn surfaces bled so profusely that I used Mikulicz's drainage, packing the cavity with iodoform gauze, leaving it in for twenty-four hours, and then substituting the drainage-tube. After a long, tedious convalescence, the patient was discharged, having a fæcal fistula at the lower extremity of the wound. Whether this fistula resulted from some damage done to the intestine in the operation, or from the pressure of the glass drainage-tube, or from an ulcerated condition of the lower bowel, which had been recognized previous to the operation, I do not know. She had been a victim of epilepsy, which for a number of months after the operation was in abeyance, but which has now reappeared and of which she will probably die.

In Case 6, the adhesions were also very extensive; not less than a square foot of surface was exposed in separating them. After breaking up some very extensive parietal adhesions on the right side, the hæmorrhage was quite profuse and from a hundred points, and not controlled by the ordinary isolated ligatures. Hemostasis was finally secured by passing a number of silk sutures, half an inch apart and parallel to one another, deep down beneath the bleeding surfaces, and tying them tightly. This method seems preferable to the actual cautery. It is rapid and effective. The patient did well for three weeks and seemed to be surely convalescent, when she came near dying of septicemia consequent upon several hypodermic sloughs, hypodermics having been given at the time of the operation for an alarming heart failure.

In Case 1, a croupous pneumonia developed immediately after the operation, from which the patient narrowly escaped a fatal result.

The vaginal hysterectomy was for sarcoma uteri, and has previously been reported to this society. The patient, I understand, continues in good health.

The case of incision with drainage was unlike anything I had ever seen. The cyst-wall was very thin, was opened directly without invading the abdominal cavity, and so far as I was able to determine, was inti-

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mately adherent all around, except perhaps deep down in the pelvis and on its posterior surface. I could feel the ovaries and uterus through the cyst-wall. Lawson Tait describes a variety of abdominal cyst in many respects similar to this.* He reports six cases, all occurring in young women between the ages of sixteen and twenty-six. Before operation they appeared to be parovarian cysts. Upon opening the abdomen, were found intimate adhesions between the cyst and peritoneum, limpid fluid, cysts lined with epithelium, smooth glistening surface; the uterus and ovaries could be felt through the cyst-wall, were apparently healthy and independent of the cyst. The tumors were therefore neither ovarian nor parovarian. Tait is disposed to refer them to a distinct class of pathological cysts. His impression is that they are formed by dropsical distention of an ovule which had not become impregnated, but which, having dropped into the peritoneal cavity, had there become attached and developed.

An examination of the contents of this cyst gave the following results:

Report of Analysis of fluid from abdominal cyst opened by Dr. Dudley at St. Luke's Hospital, September 26, 1887. A sample of the fluid containing about three fluid ounces was taken.

Upon inspection the fluid appears clear, translucent, and contained no (macroscopic) sediment. Color, amber; odor, none; reaction, neutral; specific gravity, 1.008.

Chemical examination showed albumen present in large quantity (nitric acid, dilute, and heat test), so that the mixture coagulated into a semi-solid mass.

Another portion diluted four times by distilled water showed, after applying the acid and heat, shaking to break up the coagulum, and allowing to settle for twenty-four hours, a precipitate filling one-third the bulk of the mixture.

Applying Francklyn's method of reduction (*Journal American Medical Assoc.*, April 4, 1885), it is found that the original fluid contains about .026 by weight of albumen.

Tests for urea, uric acid, phosphates, and peptones were applied with negative results in each instance.

Microscopical examination of twelve slides revealed no sediment except a few particles of amorphous material (probably extraneous). H. H. FROTHINGHAM.

48D STREET AND LAKE AVE., OCTOBER 8, 1887.

Preparatory Treatment.—Unless there was some special indication to the contrary, the preparatory treatment was short and simple, occupying not more than two or three days, as follows: A cathartic about forty-eight hours before the operation; repeated vaginal douches of hot castile soap suds, with thorough cleansing of the external genitalia and of the entire abdominal wall, especially of the umbilicus. One or two general shampoo baths or if practicable a Turkish bath with a lather shampoo of the hair. The hour for operating has been nine o'clock in the morning, a cup of beef-tea having been given two or three hours before. Previous to the day of the operation diet is not restricted or modified.

Antisepsis.—Antiseptic drugs as a rule were not used in direct connection with the operation. They were employed for the purpose of rendering hands, instruments, and patient surgically clean, and then thoroughly washed off with water which had been sterilized by filtering and thrice boiling; that is, antiseptic drugs were not brought in direct contact with the wound. Sponges which had been kept in weak solutions of sulphurous acid, carbolic acid, or corrosive sublimate were never used until these drugs had been thoroughly washed out with sterilized water. Indeed, everything that was to be in direct connection with the operation was treated in this manner. Fumigation of the patient's room has only been done when it had previously been occupied by several cases or by a suspicious case. Sometimes,

* "The Pathology and Treatment of Diseases of the Ovaries." Fourth edition, page 184. William Wood & Co.

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as a matter of ceremony, a little iodoform was sprinkled over the wound before the dressings were applied, but it smells bad and may do harm by exciting or keeping up nausea.

If, in the toilet of the peritoneum, there be blood, oozing points, or pus, or if these be even suspected, I wash out the abdomen freely, putting in quarts or gallons of water, and when in doubt whether this should be done, I remove all doubt by doing it.

The same rule applies to drainage. If in doubt, always drain. I have recently lost a patient whom drainage might have saved. The adhesions were extensive, but the abdomen being perfectly dry, I closed without drainage. She did badly for the first thirty-six hours. I reopened; there had been no hæmorrhage, but the abdomen contained an abundance of bright red serum. If this had not been allowed to accumulate at all, the result might have been different.

The glass drainage-tube is always preferred. The tubes kept in the shops are too large. I have had some made, of the diameter of lead pencils, having the shape of test tubes, with many small perforations the size of a pin head at the closed end. Two or three of these tubes may be introduced if desired. They do no harm; they can be removed if nothing comes through, and the openings immediately close, and they carry off the bloody serum or other fluids as efficiently as tubes of large size. Drainage not only prevents septic infection, but by keeping the abdomen dry serves as a hemostatic, as moisture favors hæmorrhage. It is important that the perforations at the end of the drainage-tube be quite small, otherwise portions of omentum are apt to work themselves through and make trouble in the removal of the tube. I have recently had two such cases; in one the tube was nearly half full of omentum which had worked its way through an opening only one-tenth of an inch in diameter. This annoyance may be in a measure prevented by giving the tube a turn or two whenever the dressings are opened.

Medication and Diet.—The cases included in this report have recovered with very little medicine, some without any at all. Opium has been used very exceptionally. A patient who begins to take opium for pain after abdominal section ordinarily continues to have the pain and to require the opium; but if the drug be withheld, the pain generally subsides.

Case 11 strikingly illustrates the advantage of a non-opium treatment. Abdominal tenderness and distention, and other signs of peritonitis appeared soon after the operation; it became essential to relieve the distention by evacuation of the bowels; soap and turpentine enemata were inadequate, and the movement was not without difficulty secured by means of calomel and soda, whereupon the peritonitis subsided. Had the secretion been locked up under the influence of opium, the peritonitis would have probably extended and I fear with fatal result.

It is, perhaps, not too much to say that the modern treatment of peritonitis by catharsis, judiciously employed, is sound. Not less than half of my patients after abdominal section have a cathartic before the end of the third day; the others are usually treated with copious enemata of stiff soap suds in which a teaspoonful of turpentine to the quart has been thoroughly mixed. Upon the least suspicion of distention an action of the bowels should be secured.

During the first twenty-four hours no food whatever is given; only a little hot water, or ginger ale, or possibly champagne. On the second day a little barley water is cautiously given, soon to be followed, if there is no disturbance or nausea, with half-teaspoonful or teaspoonful doses of milk, repeated occasionally and increasing in quantity, as the patient gives evidence of being able to bear it.

The Staffordshire Knot.—Three years ago I saw Mr. Tait apply the Staffordshire

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knot. In the first case, after my return, I attempted to apply it and the patient died of hæmorrhage. The next year I saw Mr. Tait operate fifteen or twenty times, and particularly observed his method of applying this knot, and since then have used it invariably, and consider it, generally speaking, the best ligature. A distinguished surgeon in New York has lost a number of patients from hæmorrhage with the Staffordshire knot, and has discarded it as dangerous. Indeed, a number of operators have had most unpleasant experiences in its use.

The secret of Mr. Tait's success lies in a single maneuver. After the pedicle has been transfixed, the loop drawn through and brought over to the point of transfixion and placed between the two free ends of the ligature, these latter are held firmly between the thumb and finger of the left hand close to the point of transfixion. Then with the right hand he catches each free end separately, and draws the ligature perfectly tight, and while the thumb and finger of the left hand still hold the thread at the point of transfixion to prevent the ligature from slacking again, the operator, with his right hand, aided by the assistant, makes a hard knot.

An additional precaution to prevent the ligature from slipping may be wisely observed by transfixing at two points, first forcing the loop through at the juncture of the Fallopian tube and uterus in a direction from the operator, then carrying it along on the further side of the broad ligament and drawing it through again in the direction of the operator, transfixing at the hilum of the ovary. The loop may then be drawn over the tube and ovary and that portion of the broad ligament which it includes and tied as already described. This modification of the Staffordshire knot, which, I am informed, Mr. Tait also occasionally employs, makes hemostasis doubly certain, and is to be preferred on this account.

A word about the silk. The great annoyance which every operator has experienced in breaking a thread at a critical moment, while attempting to apply a firm ligature, is sufficient proof that the silk ordinarily sold by instrument makers is generally inferior and often worthless. A variety of twisted silk, known as "Chinese Grass," may be found at the fishing-tackle shops. For surgical purposes it is unexceptionable, inasmuch as it has the qualities of absolute purity and great strength.

The Arrest of Menstruation.—One of the chief objects in the removal of the uterine appendages, in a great majority of cases, is to arrest menstruation; in other words, if menstruation be not arrested, the operation in very many cases fails. In the early history of the operation the ovaries alone were removed, or the ovaries and a part of the tubes. It was found in some cases that menstruation continued as before or increased. Then the tubes began to be removed also, and the complete arrest of menstruation was more frequent. It was further found that if the tubes were removed entire, close to the uterus, menstruation was almost always arrested, and that in many cases which were thought to be exceptions, the tubes in reality had not been entirely removed. Oftentimes a small knuckle of tube was discovered to have been left, and to be so closely adherent to the uterus that it escaped notice. The removal of this knuckle has been known to arrest menstruation. Reasoning from these facts, it was concluded that the tubes really have more to do with menstruation than the ovaries.

Contrary to this idea, Dr. Arthur Johnston, of Danville, Ky., in a conversation with me several months ago, said that the true explanation of these facts might involve an entirely different conclusion. There is a little plexus of nerves in the broad ligament, in the angle formed by the uterus and Fallopian tube. When the tube is entirely removed, this plexus of nerves is entirely removed also, and on this account it may be that menstruation ceases, rather

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than on account of the removal of the tubes.

If this be true, it is a fact of immense value. Possibly a ganglion may be found in this region, and it may follow that the removal of this plexus alone, without reference to the ovaries and tubes, may arrest menstruation. This specimen from Case 2 illustrates the plexus of nerves, which is easily recognized by the naked eye.

The Incision.—The opening into the abdomen has, in most instances, been short. Surprising as it may seem, it is sometimes easier to perform difficult manipulations in the abdomen through a small opening than through a large one. The large opening permits the intestines and omentum to rise up in the way of the operator, and to render inaccessible the field of operation. This is even true of large ovarian cysts with extensive adhesions. After the removal of the fluid, the lax abdominal wall permits the opening to be moved about to almost any part of the cavity. In many instances the short incision enables the operator to do his work with the minimum amount of operating, and for obvious reasons, therefore, with the minimum risk.

It is well, in closing the abominal wound, to tie the sutures with bow knots, leaving the ends long, in order to obviate the necessity of introducing new sutures, in case it becomes desirable, at any time, to re-open the wound.

General Remarks.—It has so happened that in almost all of these cases there has been a steam radiator under the window before which the operations were done, the patient's feet being toward the window. This insured a constant warmth of the feet during the operation, and perhaps has in some degree contributed to the freedom from shock.

In removing the appendages, the toilet of the peritoneum may be much facilitated by forcing a soft sponge down into the cul-de-sac of Douglas as soon as a tube and ovary is drawn up into the wound to be ligatured; two or three sponges may be required. If there is much oozing, they may be frequently changed. By this means the blood is immediately taken up by the sponges, and when these are removed the peritoneum is dry. Otherwise blood would find its way into the cul-de-sac and form a clot which might escape notice.

I have not brought the specimens, with the single exception of Case 2, because there is not very much of interest in the ordinary specimen. Every one presents specimens in abdominal surgery, and it has, therefore, ceased to be a luxury to look at them unless they are very remarkable.

Professor C. T. PARKES: I think Dr. Dudley is to be congratulated upon these interesting and successful cases, but I think the doctor will not have done all his duty until he has given us some of the snags he has met with in the shape of deaths. These cases are full of interest, but I have always found the cases that have died have been the ones from which I have learned the most. I have no doubt that will come in due time.

So far as my experience goes in the removal of the uterine appendages, in every case there has been found disease of the appendages or ovaries, there was either closure of the internal or external opening of the tube, some enlargement, or some disease of the ovaries themselves, which really pointed to the condition of the appendages as the cause of the trouble.

In the case Dr. Dudley reports of cyst with drainage, that had no connection with the uterus or ovaries, which, after an opening was made into the abdominal cavity and the finger introduced, the ovaries and uterus were felt perfectly normal, gave rise, in my mind, to the suspicion that, instead of being a cyst with a distinct and separate wall that could not be recognized or differentiated from the peritoneum, it was a case similar to one I have seen, which would come under the appellation of an encysted dropsy, where the inflammation of the peritoneal cavity had been of such a nature as to agglutinate the intestinal folds togeth-

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er, and formed a perfect roof to the cavity, and the fluid had gone on accumulating until the quantity of fluid had shown the external manifestations of a cyst; when cut into, the cavity was found to have no connection with the uterus. It is what Spencer Wells calls an encysted dropsy. I think it would be difficult to say that there was a true cyst-wall in a case of that kind, if no separation whatever could be found. The character of the fluid he mentions rather points to that condition.

I was exceedingly well pleased to hear the doctor speak of his experience with reference to antiseptic precautions; it agrees with my experience so far as abdominal work is concerned. In a case I reported a few years ago, the only case in which I had had much trouble in that series, and in which I carried out Lister's instructions, it gave me more trouble than all the rest, and I think it was from using too strong antiseptic applications, so I resumed the same course the doctor has indicated with regard to antiseptic precautions in abdominal cases. Several years ago, in the Chicago Medical Society, I took occasion to refer to the fact that I had tried the Staffordshire knot and it failed. I did an operation for the removal of the uterine appendages before a class at college, and desired to illustrate the Staffordshire knot. I thought I understood all about it, and when I had it applied, cut off the appendages and returned the stump to the abdomen, but to my astonishment the wound filled with blood, and I had quite a time to fish it up from the cavity and stop the bleeding which was going on freely. I recognized then the very fault the doctor has illustrated; the trouble was that I did not secure the pedicle at all in tying the knot. Recently, on a visit to New York, I saw Professor Pope do two laparotomies for uterine disease. In one of them I asked him to illustrate to me the application of the Staffordshire knot, and he did it in the manner which the doctor has illustrated, and showed me plainly where my fault had been in not pulling up the ligature on each side before the knot was tied.

So far as my experience goes, in many of these cases which require the removal of the appendages, there are no symptoms that can be fixed, so far as the physical examination is concerned, as coming from any disease of the uterus or appendages, but after the operation is done it often turns out that disease is found in the tubes.

There was one point I wished to speak of—the case of epilepsy relieved by an operation. I am associated with a gentleman who has had a great deal of experience in one of the insane asylums with epileptics, and he has found it to be a fact that no matter how small an operation may be done, and no matter where it is done, as a direct effect of that operation the patient is relieved of epileptic seizures for some time.

Dr. HENRY T. BYFORD: I have had a great deal of experience with Tait's knot, but it has all been confined to one case. I pulled the threads tightly before tying, closed up an apparently dry peritoneal cavity, and lost my patient from hæmorrhage. The ligature had not held. As the method which I ordinarily employ has never failed me, I have not since felt inclined to try the more complicated varieties, which, although they may be as safe, are more difficult of application. I pass a double thread through the edge of the ovarian ligament and through the mesosalpinx near the Fallopian tube, thus tying up the ovarian ligament, Fallopian tube, and ovarian artery on one side, the rest of the broad ligament on the other, and then the whole stump *en masse* with the same threads.

With regard to after-treatment, I think that one of the most important recent advances has been the administration of saline laxatives in place of opiates; as soon as symptoms pointing to peritonitis, sepsis, or intestinal obstructions make their appearance, they must be given early.

Professor KNOX: What is your object in getting antiseptics out of your ligatures and instruments?

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Professor DUDLEY: Not having removed the cyst in Case 9, I am unable to prove that a cyst existed. I think Dr. Parkes would readily agree with me had he been present at the operation. Among those who saw the operation there was no difference of opinion.

Fumigation of an operating room is undoubtedly an element of safety, although it is practically impossible to sterilize the air of a room by this or by any other means, because, after fumigating, other air will come in. It is evident, however, that, under ordinary conditions, the danger of infection from the air is very small as compared with the danger from non-sterilized fingers, instruments, ligatures, sponges, etc. The object of washing instruments, sponges, and ligatures free of antiseptic drugs is to avoid the irritating influence which these drugs might exert if brought into direct relation with the operation.

The question has been raised relative to the removal of the appendages for the relief of dysmenorrhœa. In none of the cases reported was dysmenorrhœa the prime indication for the operation, although dysmenorrhœa was frequently one of a variety of morbid conditions, the pathological causes of which it was hoped the operation would remove. In Case 2 there had been dysmenorrhœa, but the operation was not done on that account, although I would not say that it never should be done in an extreme case, incurable by other means.

Professor JAGGARD: What was the indication for operation in this case of removal of the appendages? The specimens show no appearances of disease that I can make out.

Professor DUDLEY: This was a case of retroflexion, which I had failed for nearly two years to support by artificial means. The patient had suffered for several years from recurring attacks of pelvic peritonitis; the left ovary was prolapsed and was the seat of constant unremitting pain. Although urged to do this operation for a year, I had refused, and was only induced to undertake it after a long effort to give relief by other means. There was no element of hysteria in this case.

The patient had been a victim of more or less constant and acute pain; since the operation she has been free from pain. She had been obliged to spend a large part of each day in the reclining position; since the operation she requires the usual amount of rest at night, and no more. Her nutrition had suffered to an extreme degree from reflex gastric disturbances, and she was unable to take much food of any kind; soon after the operation digestion became normal, she could take all kinds of wholesome food, and the anæmia and emaciation promptly disappeared. She had been unable to walk or stand without great difficulty, or to endure the least fatigue; since the operation she has been able to swim, to walk, and to dance without limit. The patient has been a pitiable invalid; after the operation she became well.

In most of the other cases the appendages themselves showed more gross indications of disease, but in this case the removal of the appendages has given relief to a most distressing and most obstinate malady, which was just as serious for the patient as it could possibly have been had the ovaries and tubes been the seat of every pathological development which has ever been known to affect these organs. In fact, the results have, perhaps, been more brilliant than in any other case of this series.

I would not refuse to remove the ovaries and Fallopian tubes for the relief of a malady which could not be cured by any other means, if that malady rendered the patient a miserable and useless invalid, and if the patient could be cured by that operation.

Much disease may exist in the appendages with very little indication for their removal. A proposition which should make the extent to which the appendages are diseased proportionate to the indication for their removal would be untenable.

The operation is certainly liable to an

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immense amount of abuse, a kind of abuse which is most serious for the patient, and on this account it is probably becoming the subject of vigorous criticism, which should have the fortunate effect of limiting its performance to suitable cases. The removal of the appendages produces senile atrophy of the remaining reproductive organs, even though these organs be the seat of disease. Cessation of function follows, therefore, even though that function be modified by disease—that is, with the atrophic process, pathological conditions cease. Consequently a dangerous possibility of this operation lies in the fact that it is certainly capable of curing a number of maladies which ought to be relieved by other means. The temptation to produce brilliant results by a prompt and certain remedy must always be great when other measures are long, tedious, and uncertain.

MICHIGAN STATE BOARD OF HEALTH.

Regular Meeting, July 10, 1888.

The regular quarterly meeting of the Michigan State Board of Health was held in Lansing, July 10, 1888.

Besides the routine business, certain proposed bills for perfecting the public health laws of the State were discussed and referred to the Committee on Legislation. The objects of the bills are as follows:

1. A Bill to prevent the use and sale of infected milk and infected-milk products;

2. A Bill to declare the least proportion of milk solids and of fat in unadulterated milk;

3. A Bill to require the labeling of all gasoline, benzine, and naphtha sold at reretail; and

4. A Bill to prevent the introduction and spread of dangerous communicable diseases.

Relative to Bill No. 2, mentioned above, it may be said that a law in Michigan prohibits the sale of impure or adulterated milk, and provides for an inspection of milk in Detroit and other cities and incorporated villages in the State. This law provides penalties for its violation, but it does not fully explain what is meant by pure milk. In each prosecution it is necessary to go over the whole ground of proving what should be taken as a standard, and why. If an unscrupulous chemist appears for the defense, and gives it as his opinion that the standard is too high, the offending milkman may escape because of this conflict of testimony. If the law fixed a definite legal standard, such a result would not be possible. The thousands of analyses made and recorded in the different States of the Union supply a basis for fixing such a legal standard.

The object of Bill No. 4, is to punish any one who, knowingly affected with small-pox, scarlet fever, diphtheria, or any other dangerous communicable disease, shall willfully enter a public place or a public conveyance, or who shall willfully go into any other locality without a permit of the board of health of that locality, or who shall knowingly and willfully convey any child or irresponsible person affected with any dangerous communicable disease, or the corpse of a person dead from such disease, or who shall, in any way, subject another to danger of contracting one of these diseases. At present there is no statutory provision punishing those traveling from place to place on the cars or in other public conveyance, knowing themselves to be affected with a dangerous communicable disease, and cases have been brought to the notice of the State Board of Health which would be covered by this proposed bill.

A letter was presented from a citizen of Branch County complaining that incompetent practitioners were driven, by the stringent laws of Indiana and other States, into the southern counties of Michigan, and asking the State Board of Health to exert its influence to protect the State from charlatans and quacks. The subject was

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discussed by the board and referred to a committee with instructions to draft a proposed bill for presentation to the Legislature.

DIETARY OF STATE INSTITUTIONS.

The secretary stated that replies had been received from seven different State institutions in reply to the request made by the State Board of Health for information concerning dietary. The replies were read at a meeting of the board, and were referred to Dr. Hazlewood for further careful study and report.

POISONING BY TYROTOXICON.

A communication was read from Dr. W. C. West, of Monroe, concerning about twenty cases of cheese-poisoning in that city. Those poisoned "were taken at first with great prostration—a sensation as though they would die. This was followed by vomiting which would relieve them somewhat. The vomiting was very severe in most of the cases, and was followed by diarrhœa. There was pain in the stomach and bowels." All who ate of the cheese were affected.

A sample of the cheese was sent to Professor R. C. Kedzie for analysis, who found that poison present in the sample, and attributed its poisonous effect to tyrotoxicon.

Complaints were made to the board that some health-officers use their official position to injure brother practitioners who report dangerous communicable diseases, by going to a case after the prominent symptoms have disappeared, deciding that it is not the disease reported, and thus bringing upon the physician who reported it the contempt of the family. After considerable discussion, the following resolution was adopted:

Resolved, That it is the opinion of this board, when a case of dangerous communicable disease is reported by a reliable physician, the health-officer should act upon the diagnosis of such physician without question.

COMPENSATION OF HEALTH-OFFICERS.

A card with printed questions was sent to each of 1,055 health-officers of townships, 213 health-officers of villages, 48 health-officers of cities (in all, 1,316 localities) asking for information concerning the compensation of health-officers, work performed by them, etc. Replies were received from 551 townships, 104 villages, and 20 cities—in all 675 localities.

According to the reports, provision is made for an *annual salary* in 111 townships, 54 villages, and 18 cities. The annual salaries provided for average $16.93 for each township, $128.33 for each city, and $26.21 for each village.

HOW WELL DOES PUBLIC OPINION SUSTAIN PUBLIC-HEALTH WORK?

A large majority—444 of the 593 health-officers—stated that they were well sustained; 151 said that they were poorly sustained, and 36 stated that public opinion did not sustain them at all.

SERVICES RENDERED BY THE HEALTH-OFFICERS.

Replies to the question as to services rendered by the health-officer were received from 593 localities. The number of nuisances inspected in all the localities reported was 5,075; the number abated was 3,679. The number of reports made to the State Board of Health was 4,029, and the number of communicable diseases looked after was 5,389. The above numbers do not fully show the amount of service performed, because many health-officers stated that they had inspected and abated nuisances, sent reports to the State Board of Health, and looked after cases of communicable diseases, but had kept no record in either case; therefore the foregoing numerical statements of work performed are too small; and they represent only 593 out of the 1,494 localities in the State.

EXAMINATION OF PLANS FOR A PROPOSED STATE BUILDING.

The plans for a proposed cottage for convalescent insane near the asylum at

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Kalamazoo were examined at considerable length, but not very satisfactory results could be reached because of lack of statement of details. Letters explanatory by the medical superintendent, Dr. Palmer, were read by the secretary, and these letters gave more information than did the plans themselves.

The proposed cottage is to accommodate fifty inmates. The plans and letters show that considerable attention has been given to some of the sanitary requirements.

QUARTERLY REPORT OF WORK.

During the second quarter of 1888, the office of the board received information of and took action concerning 27 outbreaks of typhoid fever, 59 outbreaks of diphtheria, and 84 outbreaks of scarlet fever. To the localities where the outbreaks occurred, the usual number of documents on the restriction and prevention of these diseases were sent for distribution to those most interested. The office also received information concerning 91 outbreaks of measles.

THE AMERICAN OTOLOGICAL SOCIETY.

Twenty-first annual meeting was held at Pequot House, New London, Connecticut, July 17, 1888.

The Society was called to order by the President, Dr. J. S. Prout, of Brooklyn, who alluded in his opening address to the loss sustained by the Society in the death of Dr. C. R. Agnew, of New York, and suggested that action be taken.

On motion, Dr. Gorham Bacon and Dr. W. H. Carmalt were appointed to prepare an appropriate minute on the subject.

Dr. W. H. Carmalt presented the report of the Committee of Conference on the Congress of American Physicians and Surgeons.

The report was accepted, and it was decided that when the Society adjourns it adjourn to meet at the Arlington Hotel, Washington, D. C., September 18, 1888, at 11 a. m.

On motion, it was decided that the meeting should be strictly for scientific matters, and should not be regarded as a business meeting; that it should not take the place of the annual meeting.

Two papers by Dr. S. Sexton, of New York, entitled "Periostitis Externa of the Mastoid," and "Some of the Indications for Excision of the Drumhead and Malleus," were read by title,

A paper was read by Dr. C. H. Burnett, of Philadelphia, entitled "A Case of Aural Vertigo (Menière's Disease) Relieved by Excision of the Membrana Tympani and Malleus." The patient was an unmarried woman, thirty-seven years of age, who six years previous had been under treatment for chronic naso-pharyngeal catarrh, and chronic catarrh of the left middle ear, accompanied with impairment of hearing, tinnitus aurium, and a sense of fullness in the affected organ. Treatment of the catarrhal disease of the ear produced little, if any, benefit. After the lapse of six years, the symptoms already named grew worse, and there was superadded marked aural vertigo. The membrana tympani in the line of the malleus handle was found adherent to the promontory, and the consequent retraction of the entire chain of bones was supposed to be the cause of the aural vertigo and probably of the sense of fullness, and of the tinnitus.

The operation of excision of the membrana tympani and the malleus was performed under ether May 21, with immediate relief to the aural vertigo, which before had often been sufficient to cause the patient to hold to a lamp-post for support, and to the sense of pressure and tinnitus, which good result has been maintained to the present time. The hearing was practically unaffected by the operation. The incus was detached from the stapes, but could not be removed, as it slipped into the attic, and grappling for it is not advisable on account of the risk of irritation.

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Its removal, furthermore, would have no effect on the result of the operation.

Dr. S. Sexton then exhibited a new portable battery for the storage of electro-motor force, and a new head-lantern for the employment of electric light in surgery. The battery was made at his suggestion. It consists of three cells, and will light a six-candle electric light. The lantern is a modification of that of Trouve, but much lighter, and having a non-conducting base. Such a light is almost necessary in operations on the ear, when ether is used as an anæsthetic. The battery will work continuously for twenty-four hours, and will retain its power for several weeks or months. It may be charged by a dynamo or by twelve gravity cells. When not in use, the storage battery may be kept in connection with the gravity cells.

Dr. A. H. Buck, of New York, read a paper on "Reflex Influences in the Production of Naso-Pharyngeal Catarrh." The object of the paper was to call attention to those comparatively remote exciting causes of naso-pharyngeal catarrh, which act, so far as it is possible to explain their mechanism, through the intervention of the vaso-motor fibres of the sympathetic nerve. Little is known of the direct exciting causes of naso-pharyngeal catarrh. The most common indirect cause is chilling of the surface of the body. According to certain authorities, affections of the teeth should rank next in order of frequency. The author had, however, seen very few cases in which dental disturbance played the part of a promoter of naso-pharyngeal catarrh or of aural disturbance. Some of those indirect causes which he had observed were then enumerated. Irritation of the gastro-intestinal canal is, in not a few instances, a strong exciting cause of naso-pharyngeal catarrh, and of all the aural disturbances growing out of such a catarrh.

Reflex influence, involving the vault of the pharynx and the ear, may emanate from more distant sources.

The author states that he had spoken of these as indirect causes—that is, as factors competent to aggravate a pre-existing but perhaps latent catarrhal disease, but he saw no reason why these reflex influences may not in certain cases play the part of direct exciting causes. He considered it impossible to demonstrate the correctness of this belief, and therefore preferred to adopt the view which assigns to them a less independent rôle.

Dr. Buck then also read "A Contribution to the Anatomy of the Elephant's Ear." The ear was exhibited, and the interesting points indicated. The external auditory canal is embedded in air-containing cells, and is six and a half inches long. The canal at the time of examination was filled with desquamated material. In the middle ear, the handle of the hammer seems to lie in a horizontal plane; it is not vertical, as in the human being. The anterior part of the drum-cavity is completely cut off from the posterior part. The Eustachian tube comes up through a system of air-cells and opens through one of them close to the drum-membrane. Under the floor of the tympanic cavity there are three septa, making stall-like spaces. Two of these are quite long, six or seven inches. The labyrinth and other parts were not exhibited.

A paper by Dr. Huntington Richards, of New York, was then read by Dr. Buck, on "A Case of Polypoid Angioma of The Ear," and one on "A Case of 'False Drum Membrane.'"

Dr. J. B. Emerson, of New York, read a paper on "The Flexible Catheter As a Drainage-Tube—With Cases."

The author cited several cases, exhibiting the use of the flexible catheter as a drainage-tube.

With deeply seated inflammation of the auditory canal or mastoid cells, maintenance of drainage through a fistula is a necessity; and to prevent closure of the fistula, either by granular growth or natural healing, is important.

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Dr. Emerson recommends the use of the flexible catheter as generally the best means to employ, and states his reasons to be the comparative comfort and safety, together with convenience of control by both surgeon and patient. The efficiency observed in the use of the flexible catheter was also referred to.

Dr. Charles J. Kipp, of Newark, reported on "Three Cases of Transient Bilateral Horizontal Nystagmus in Connection with Purulent Inflammation of the Middle Ear."

Dr. J. O. Tansley, of New York, exhibited "An Improved Aural Snare."

The snare was devised to overcome an objection to the ordinary Wilde snare—that is, the little jerk and rebound of the instrument when the growth is cut through. The instrument exhibited consists of a small tube through which the wire passes, to be connected with a small bobbin, by the turning of which it is gradually shortened.

A paper by Dr. S. Sexton, of New York, on "Foreign Bodies in the External Auditory Canal," was read by title.

The following officers were elected:

President—Dr. J. S. Prout, of Brooklyn.

Vice-President—Dr. Gorham Bacon, of New York.

Secretary and Treasurer—Dr. J. J. B. Vermyne, of New Bedford, Massachusetts.

Committee on Membership—Dr. A. Mathewson, Dr. D. B. St. John Roosa, and Dr. John Green.

Delegate to Congress of American Physicians and Surgeons—Dr. W. H. Carmalt, of New Haven; *Alternate*, Dr. G. Bacon, of New York.

The Society then adjourned to meet at the Arlington Hotel, Washington, D. C., Tuesday, September 18, 1888.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

The twenty-fourth annual meeting was held at New London, Connecticut, July 18 and 19, 1888.

The President, Dr. W. F. Norris, in the chair.

A memorial of Dr. C. R. Agnew was read by Dr. H. D. Noyes. Committees were appointed to draw up resolutions concerning the death of Dr. E. G. Loring and that of Dr. Joseph Aub.

A CONTRIBUTION TO THE TREATMENT OF MEMBRANOUS OPACITIES OF THE VITREOUS.—Dr. Charles S. Bull, of New York, read a paper which contained histories of fifteen cases of membranous opacities of the vitreous in which he had resorted to the operation first performed by Von Graefe, an account of which was published in 1863. Internal treatment and local applications had no effect on those opacities of the vitreous demanding this operation. According to the nature of the case, he employed the discission needle, the sharp-pointed cataract knife, or a needle with a broader point.

Dr. F. Buller, of Montreal, gave the history of a case of pulsating exophthalmia cured by ligation of the common carotid.

Dr. Swan M. Burnett, of Washington, read a paper giving an analysis of the refraction of 576 healthy human corneæ examined with the ophthalmometer of Joval and Schiotz.

Dr. J. B. Emerson, of New York, read the history of a case of progressive hypermetropic astigmatism.

Dr. E. Jackson, of Philadelphia, reported a case of œdema of the choroid and retina, and also exhibited a new form of cataract knife.

New instruments were presented by Dr. Tansley, consisting of a lachrymal syringe, modified probes for enlarging the lachrymal canal, a clamp to close the entrance to the lacrhymal duct and prevent the passage of atropine solution into the nose and throat, and an improved style.

Aluminium lachrymal probes were shown by Dr. Theobald. Being very smooth and slippery, they give less pain than silver probes, and do not oxidize.

Dr. Risley, Dr. Theobald, and Dr. Noyes

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gave the results of some examinations as to the size of the lachrymal canal in the dry skull, and the lesson drawn was that, inasmuch as the size of the canal varied much in different subjects, and perhaps also on the two sides in the same subject, one could be governed in the use of probes only by actual trial in each case.

SYMPTOMATIC MYOPIA.—Dr. Mittendorf said that the fact that myopia as a symptom of certain affections of the eye was so little appreciated had led him to prepare this paper. Traumatism might give rise to symptomatic myopia, but the condition occurred more commonly with some disease. In some rare cases it had been caused by dislocation of the lense forward.

HYSTERICAL BLINDNESS IN THE MALE.—Dr. W. O. Moore, of New York, stated in a paper that Briquet had found, out of one thousand cases of hysteria, fifty in males, while other authors had found the proportion of males to females suffering from the disease as one to fifteen. From 1875 to 1885, in France, no fewer than five theses on hysteria in the male had appeared. In males the symptoms lasted longer than in females, and they were more likely to occur in weak and effeminate subjects.

FOREIGN MEDICAL SOCIETIES.

CLINICAL SOCIETY OF LONDON.

CONCLUSIONS OF THE MYXŒDEMA COMMITTEE.

Dr. Ord, as the chairman of the myxœdema committee read the following conclusions. He admitted that the time taken up in the investigation was protracted, but he claimed that when the results were known the time would not appear out of proportion.

1. That myxœdema is a well-defined disease.

2. That the disease affects women much more frequently than men, and that the subjects are, for the most part, of middle age.

3. That clinical and pathological observations respectively indicate, in a decisive way, that the one condition, common to all cases, is destructive change of the thyroid gland.

4. That the most common form of destructive change of the thyroid gland consists in the substitution of a delicate fibrous tissue for the proper glandular structure.

5. That interstitial development of fibrous tissue is also observed very frequently in the skin, and with much less frequency in the viscera, the appearances presented by this tissue being suggestive of an irritative or inflammatory process.

6. That pathological observation, while showing cause for the changes in the skin during life, for the falling off of the hair and the loss of the teeth, for the increased bulk of the body, as due to the excess of subcutaneous fat, affords no explanation of the affections of speech, movement, sensation, consciousness, and intellect, which form a large part of the symptoms of the disease.

7. That chemical examination of the comparatively few available cases fails to show the general existence of an excess of mucin in the tissues adequately corresponding to the amount recorded in the first observations, but that this discrepancy may be, in part, attributed to the fact that tumefaction of the integuments, although generally characteristic of myxœdema, varies considerably throughout the course of the disease, and often disappears shortly before death.

8. That, in experiments made upon animals, particularly on monkeys, symptoms resembling, in a very close and remarkable way, those of myxœdema have followed complete removal of the thyroid gland, performed under antiseptic precautions, and with, as far as could be ascertained, no injury to the adjacent nerves, or to the trachea.

9. That, in such experimental cases, a large excess of mucin has been found to be

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present in the skin, fibrous tissues, blood, and salivary glands; in particular, the parotid gland, normally containing no mucin, has presented that substance in quantities corresponding to what would be ordinarily found in the submaxillary gland.

10. That the full analysis of the results of the removal of the thyroid gland in man demonstrates in an important proportion of the cases the fact of the subsequent development of symptoms exactly corresponding with those of myxœdema.

11. That, in no inconsiderable number of cases, the operation has not been followed by such symptoms, the apparent immunity being in many cases probably due to the presence and subsequent development of accessory thyroid glands, or accidentally incomplete removal, or to insufficiently long observation of the patients after operation.

12. That whereas injury to the trachea, atrophy of the trachea, injury of the recurrent laryngeal nerves, injury of the cervical sympathetic, and endemic influences have been, by various observers, supposed to be the true causes of experimental or of operative myxœdema (cachexia strumipriva), there is, in the first place, no evidence to show that, of the numerous and various surgical operations performed on the neck and throat, involving various organs and tissues, none, save those in which the thyroid gland has been removed, have been followed by the symptoms under consideration; that in many of the operations on men, and in most, if not all, of the experimental operations made by Professor Horsley on monkeys and other animals, the procedure avoided all injury of surrounding parts, and was perfectly aseptic; that myxœdema has followed removal of the thyroid gland in persons neither living in, nor having lived in, localities the seat of endemic cretinism; that, therefore, the positive evidence on this point outweighs vastly the negative, and that it appears strongly proved that myxœdema is frequently produced by the removal, as well as by the pathological destruction, of the thyroid gland.

13. That whereas, according to clause 2, in myxœdema women are much more numerously affected than men, in the operative form of myxœdema no important difference of the same kind is observed.

14. That a general review of symptoms and pathology leads to the belief that the disease described under the name of myxœdema, as observed in adults, is practically the same disease as that named sporadic cretinism, when affecting children; that myxœdema is probably identical with cachexia strumipriva; and that a very close affinity exists between myxœdema and endemic cretinism.

15. That while these several conditions appear, in the main, to depend on, or to be associated with, destruction or loss of the function of the thyroid gland, the ultimate cause of such destruction or loss is at present not evident.

The president (Dr. Broadbent) congratulated the society on the completion of this important investigation, and said their thanks were due to the committee for the enormous work and to the zeal and abilities which had enabled them to present this summary of the report, and practically the report itself, during the present session. When they heard the conclusions and imagined the enormous amount of investigation and research and inquiry which was embodied there, four years was a comparatively short period. The report would make the present session memorable. It reflected the greatest possible credit upon the society. It was the most important work yet carried out in its name. Already the labors of the committee had served to stimulate the carrying out of similar investigations in Germany. He then concluded with a graceful tribute to the way in which Dr. Ord's name was indissolubly bound up with the history of myxœdema.—*Medical Press and Circular.*

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THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

CLINICAL REMARKS UPON THE OPERATIVE SURGERY OF THE MALE BLADDER.

I.—*Cystotomy in Certain Cases of Enlarged Prostate with Persistent and Aggravated Irritability of the Bladder.* — Professor Thomas Annandale said: The cases referred to under this head are those in which all ordinary treatment, including careful catheterism, washing out the bladder, and general remedies fail to relieve the almost constant distressing symptoms of pain, spasm, and desire to pass urine.

Various operative procedures have from time to time been suggested for the treatment of such symptoms, all of these having the object of establishing an artificial opening communicating with the bladder, and of allowing a metal or rubber tube to be inserted, so as to drain off the urine.

Sir H. Thompson, in the *Lancet* for 1875, vol. i, suggested that in certain of these cases the bladder should be punctured above the pubes, and that a tube should be permanently retained, and he described a special instrument for the purpose. Mr. Thomas Smith, in St. Bartholomew's Hospital Reports (1881), also advocates this proceeding. Mr. Reginald Harrison, in *Lancet*, 1886, vol. i, advocates a perineal cystotomy, with the introduction of a tube in this situation. Most surgeons are, I think, now of opinion that the perineal opening is the best in the large majority of cases in which this operation is required. Such is certainly my opinion, and my reasons are, (1) that the bladder is better drained from this opening; (2) that the incision through the prostate sometimes has a beneficial effect upon the enlarged organ. Believing in the advantages of this proceeding in certain cases, my endeavor has been to improve the retained tube so as to permit of its permanent use, when required, in a form efficient and comfortable to the patient, and after several trials the apparatus now to be described appears to me to carry out these principles. An india-rubber catheter of full size having been cut short, so that its rounded end will lie in the bladder and its cut extremity project half an inch from the perineal wound, has fitted into the projecting end a short tube of hard vulcanite half an inch in length. This allows a silk or other thread with two short loops to be firmly fastened around the catheter without interfering with its canal, and by means of these loops the cathether is secured in position in the usual way. To the other end of the vulcanite tube any convenient length of india-rubber tubing can be fixed, and by placing a small stopcock on the tubing the bladder can be readily emptied at any time by turning on the tap.

In illustration of this treatment I give brief notes of the two following cases:

CASE I.—Mr. S., æt. 70, was first seen in consultation with Dr. J. Jamieson in July, 1886, on account of prostatic retention, with cystitis and great irritability of the bladder. The patient being unable to empty his bladder, regular catheterism, with washing out the bladder and general treatment, were advised. This treatment was carefully carried out by Dr. Jamieson, and I saw him occasionally in consultation. As the patient's symptoms were only temporarily removed, and as they became so much aggravated, I performed perineal cystotomy upon the 8th January, 1887. The result was most satisfactory, and a few months after the operation he was able to go about wearing the tube which I have described. Up to this date (May, 1888) he continues well, and Dr. Jamieson writes me that "from a life of misery he has passed to one of comparative comfort."

CASE II.—Mr. —, æt. 60, was seen with Dr. Dunsmure in April, 1887. His symptoms were very similar to those affecting the patient in Case I. He had been confined to bed for several months, and various forms of treatment carefully tried without giving him relief. Cystotomy was

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performed upon the 9th of May, 1887, and after a few weeks the tube, as described, was introduced. Since that date the patient has worn the tube and is able to go about and perform his duties.

The result obtained in these two cases is, I think, most encouraging, and it will, I hope, assist in establishing this operation as an efficient means of relief in suitable cases.

Very recently it has been suggested by Mr. McGill that a special cystotomy may be employed for the removal of a portion or portions of an enlarged prostate with a view of taking away an obstruction to the natural passage of the urine. It has been long known that projecting portions of an enlarged prostate may be safely removed. More than twenty-five years ago, when assisting the late Mr. Syme to perform lateral lithotomy upon an old gentleman, a large portion of the prostate was accidentally caught between the blades of the forceps and torn away. This patient made an excellent recovery. Similar cases have been recorded, and I think that when an exploratory incision has demonstrated a projecting enlargement of the prostate into the cavity of the bladder, which is interfering with proper micturition, the removal of this portion is a proper and justifiable proceeding.

II.—*Cystotomy in Certain Cases of Acute Retention of Urine, the Result of Enlarged Prostate.*—When acute retention of urine takes place in patients suffering from enlargement of the prostate, it may be temporarily and easily relieved, more especially if it is early and carefully treated, but the condition is not unfrequently tedious in its progress and complicated by cystitis and general irritative disturbance and fever, more particularly when treatment has been delayed or unsuccessfully employed. When the required use of the catheter irritates, or when its employment is unsatisfactory owing to the difficulty of passing it into the bladder, to the want of experience on the part of the medical attendant, or to the circumstance that the patient is distant from proper surgical aid, I am of opinion that a perineal cystotomy is the most likely means to give the patient efficient relief. No doubt in urgent cases supra-pubic aspiration or puncture is a valuable means of relieving the retention; but this proceeding can only be temporary, even if frequently repeated, and experience of it has shown that it is not without risks. On several occasions, when called to distant parts of the country to consult in regard to difficult cases of prostatic retention, I have advised and successfully performed perineal cystotomy, believing that this treatment was best for the comfort of both patient and his medical attendant.

III. — *Cystotomy for the Removal of Tumors of the Bladder.*—The experience of this operation has already proved that in favorable cases—that is, in cases of tumors having little or no malignant tendencies — encouraging results are obtained. It cannot yet be said that the exact diagnosis of the presence of a tumor in the bladder can always be made, nor can the exact nature of the tumor, if present, be always determined by mere symptoms, microscopic examination of the urine, or external examination, but an exploratory incision will in all cases of doubt decide the question.

From my experience in connection with operations for the removal of bladder tumors I would wish to express an opinion as to the best form of cystotomy in such cases. I have no hesitation in saying that tumors of the bladder can be most accurately and thoroughly removed by making both a supra-pubic and perineal incision. If the forceps or other extracting instrument is introduced through the perineal wound and their blades, guided by one or more fingers, passed into the bladder through the supra-pubic wound, an accurate removal of the growth is, in my opinion, most thoroughly obtained, more particularly in the case of broad-based tumors. It is quite possible to remove a tumor of

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the bladder through either a perineal or supra-pubic opening, but I believe that by means of the two openings a greater accuracy of removal is possible.

My usual practice is to first make a supra-pubic cystotomy, and then a central perineal one, in all cases in which the diagnosis of the presence of a removable tumor is well determined; but when the diagnosis is doubtful, I first make a central perineal exploratory incision, and then, if required, follow this up by a supra-pubic cystotomy.

IV.—*Cystotomy for Persistent Irritability of the Bladder Unrelieved by Ordinary Careful Treatment.*—Cases of this nature are not uncommon, and they may or may not be associated with symptoms of cystitis. When all ordinary treatment fails to relieve, perineal cystotomy gives, in my opinion, the best chance of curing or relieving the condition, and it is from my experience much more effective than any drainage of the bladder by the retention of a catheter or tube passed along the urethra. In some of these cases little or no change in the bladder structures can be detected; but in others I have found superficial ulceration or a velvety condition of the mucous membrane. Needless to say that before practicing cystotomy in any case of this kind all sources which are known to produce symptoms of irritability of the bladder should be carefully investigated.

Note.—The recent suggestion that the endoscope may be employed by passing it through a perineal wound, such as is made in perineal cystotomy, is, in my opinion, a most valuable one, and is likely to much assist the correct diagnosis of obscure bladder conditions.

EMPYÆMA OF THE SUPERIOR MAXILLARY ANTRUM WITH ONLY NASAL SYMPTOMS.

P. M'Bride, M. D., F. R. C. P. Ed., F. R. S. E., Surgeon to the Ear and Throat Department, Royal Infirmary, and Lecturer on Diseases of the Ear and Throat, Edinburgh School of Medicine, read the following paper:

Among both surgeons and specialists there has been, and I may even say there still is, a tendency to regard suppuration of the lining membrane of the maxillary antrum as invariably attended with pain, swelling, and distention of the osseous walls of the cavity. The condition to which I propose now to direct attention is associated with none of these symptoms, and the patients usually come to the surgeon complaining only of a constant or periodic discharge of pus from the nose. Sometimes the secretion is offensive, and then both its smell and taste may be perceived by the sufferer; in other instances, however, it is free from fœtor. Inasmuch as one antrum only is commonly affected, the discharge is usually found to come from one nostril—although it must not be forgotten that as the two nostrils communicate posteriorly any large quantity of secretion finding its way into one may in part escape by the other, more especially while blowing the nose. I have laid some stress upon this point because the unilateral character of the discharge is often only discovered after careful questioning.

Very often, too, the patient has never observed that the quantity of discharge is altered by changing the position of the head, although I believe that a careful rhinoscopic examination will commonly prove that this phenomenon is present. In most instances inquiry will elicit a history of faceache, sometimes extremely slight, or at least of a period of discomfort in the region of the cheek; but this is frequently only discovered by strict questioning, because to the patients there seems to be no connection between the two conditions.

For the most part there is neither pain nor discomfort when the case is examined, because the suppuration has become chronic, and the pus discharges freely through the natural orifice (or orifices) into the nose. Fraenkel,* however, states that in not a few cases frontal headache is complained of, and I have seen the same

*"Berlin Klin. Wochens.," No. 16, 1887.

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symptom in one of my own cases. I was at one time inclined to regard this symptom as a reflex neuralgia, but am now more disposed to adopt the explanation suggested by Killian.* It will be remembered that the normal opening of the antrum into the nose is close to that of the frontal sinus. We shall presently—when discussing the objective signs—see that the nostril corresponding to the affected side usually shows swelling of the mucous membrane. As a sequence of this tumefaction closure of the communication between the frontal sinus and the nose occurs with the natural result, that as the contained air is absorbed, the frontal cavity is placed under abmormal physical conditions. It is even conceivable that in this way secondary inflammatory changes and exudation might result in the frontal sinus. The possibility of forehead pain and tenderness being due to antral disease is a matter of great importance, as its presence might easily lead to the diagnosis of suppuration in the frontal or ethmoidal cells.

No doubt the class of cases we are considering have been long since recognized by individual surgeons, and probably also by dentists. This may be gathered by a careful perusal of such authors as Erichsen,† Heath,‡ Lefferts,§ Scech,‖ Salter,¶ and others.

Neither in the works just referred to, however, nor in others, have I found this subject treated of with the care and consideration which it merits. Thus, Moldenhauer,** who has written the most recent and one of the best text-books on the nose, describes under the designation "Disease of the Osseous Portion of the Nose," a class of cases in which, despite his reference to Ziem's paper, he seems to assume that the nasal discharge is due to limited caries. Of the six cases there referred to, I believe, from the author's observations, that in every one the symptoms must have been due to chronic suppuration of the lining membrane of the antrum of Highmore. I have stated these facts to show that until quite recently, suppuration of the antrum without retention of pus was in many cases overlooked. To Ziem,* therefore, we must give the credit of first directing the attention of specialists to the important fact that a discharge of pus from the nose is often due to suppuration within the antrum. It seems to me, however, that we cannot hold this authority guiltless of extreme zeal for the neglected cause which he espoused. Yet, notwithstanding this, he was able to show a large number of successful results, although he seems to have opened the antrum in almost every case of purulent discharge from the nose for which he was consulted. The most scientific contribution, however, on this question is from the pen of B. Fraenkel.† As he very properly points out, the pus in these cases can be seen to issue from the region of the hiatus semilunaris. If then the nose be thoroughly cleansed, and the secretion be seen soon afterwards to appear in the middle meatus, we may suspect antral mischief but, as Fraenkel remarks, "Not all pus that is poured into the middle meatus through the hiatus comes from the antrum." For it may also proceed from the frontal sinus. In order to differentiate the two conditions, Fraenkel carefully cleanses the nostril and makes the patient sit with his head down, a position which would render drainage from the frontal sinus into the nose impossible. If, after this, more pus be found, he concludes that the maxillary sinus is at fault.

Let us now take a final glance at the clinical feature of the affection we are dis-

*"Monatsschrift für Ohrenheilkunde," etc., Oct. and Nov. 1887.

†"Science and Art of Surgery," 1887, vol. ii., p. 474.

‡"International Encyc. of Surgery" (Ashhurst), vol. v.

§ Ibid,

‖ "Diseases of the Mouth, Nose, and Throat." Translated by Blaikie, 1886.

¶"Dental Pathology and Surgery," 1874.

**"Krankeiten der Nasenhöhlen," etc., 1886.

*"Monatsschrift für Ohrenheilkunde" (Feb., March, April, 1886).

†"Berlin Klin. Wochens.," 16, 1888.

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cussing. The patient complains of a unilateral discharge of pus, which sometimes trickles from the nose in a continuous stream, and may be fœtid or sweet; in some persons the discharge seems to occur periodically. Careful examination of the affected nostril shows that the secretion comes from a point just below the anterior extremity of the middle turbinated body; sometimes, however, it is sufficiently copious to cover the posterior surface of the palate, posterior end of the inferior turbinated body, etc. If the nostrils be syringed out, and the drop of pus wiped away from the middle meatus, and the head thrown forward with the forehead down, the secretion is seen, on examination undertaken immediately afterwards, to be increased in quantity. Anterior rhinoscopy often shows the mucous covering of the inferior and middle turbinated bodies to be hypertrophied, or at all events in a state of erectile swelling. This last named condition can, of course, be temporarily overcome by the application of cocaine or menthol—a proceeding which is often necessary to obtain a better view of the parts.

Posterior rhinoscopy is merely useful in excluding other conditions. The diagnosis of the form of empyæma of the antrum under discussion is arrived at by a process of exclusion. The frontal sinus is eliminated by Fraenkel's method, and besides this cavity is rarely affected by itself. This, Zuckerkandl,* whose work on the normal and pathological anatomy of the nose is probably the most complete in existence, has never met with isolated inflammation of the frontal sinus. A careful rhinoscopic examination will exclude all other possible causes of unilateral nasal discharge, *e. g.*, the presence of a foreign body or rhinolith, ulceration, inflammation of the bursa pharyngea, ozæna, caries, etc.

There is, however, one condition which deserves more than passing notice, and which was first pointed out to me by Dr. Cotterill, in a case where he operated at my suggestion, viz., a marked redness of the gum corresponding to the affected antrum. This was found in the last case but one which I have examined; in the last the same phenomenon was present. I am not aware that this condition has been so far observed by the few authors who have written on empyæma of the antrum without the usually described symptoms. As to the cause of this form of antral affection, I think by far the most common is to be sought in the presence of decayed upper teeth, usually the bicuspids or first molar. I have met with one case, however, in which the antral inflammation was set up by either long continued nasal catarrh, or by douches used for its cure.

In conclusion, I shall briefly record two cases which seem to me fairly typical.

Mr. C. consulted me in August, 1887, and has had a discharge of matter from the left nostril for five years or so, and all remedies so far recommended having proved useless.

Objective Examination—Post-Rhinoscopy.—Parts fairly healthy, except some thickening of posterior extremities of the inferior turbinated bodies, especially on left side.

Anterior Rhinoscopy.—Right nostril almost normal; left, pus coming from anterior part of middle meatus, increased by holding head over to the right. No pain or swelling over antrum, but has had a gumboil repeatedly over the stump of the second bicuspid, where there is now a sinus. The tooth was extracted on my recommendation by a dentist (Mr. Watson), and the antrum opened through the socket, a proceeding which gave escape to a considerable quantity of pus. Systematic irrigation, carried out by the patient, freed him from his troublesome and distressing affection.

Mr. M. consulted me 18th December, 1887. For nine years patient has used a nasal douche as part of his toilet; this was ordered on account of an ear affec-

*"Normal und Path. Anat. der Nasenhöhle," etc., p. 168.

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tion at that time; occasionally during its employment a little pellet came away. He now, since July, complains of fœtid discharge from the right nostril. There was no history of pain in the antrum; but once during a railway journey he felt a curious drawn feeling in his face. He thought little of this, and it immediately passed off. In this connection it may be stated that the patient is extremely neurotic and would probably feel pain acutely.

Nasal Condition. — Slight tenderness over right cheek on firm pressure; teeth quite perfect; discharge increased by bending head over to left and also keeping forehead down.

Post-Nares.—Some purulent discharge; no ulcer or other condition to account for its presence.

Anterior Nares.—Left nostril some catarrh; no pus. Right nostril, inferior turbinated body in a state of erectile swelling, which subsides under cocaine; pus coming from middle meatus, and showing pulsation.

Nostrils.—Blown separately, right yields copious fœtid purulent discharge; from the left there comes only serous sweet discharge. No tenderness of the teeth; congestion of the upper gum and the right of the middle line; no bulging anywhere.

On the 22d December the patient was again examined, in conjunction with Mr. Duncan, and on this occasion the second bicuspid and first molar on the affected side were found to be loosened, whereas four days previously they were quite normal. Mr. Duncan after this opened the antrum through the alveolar process, and let out a quantity of fœtid pus. The case is still under treatment, but under continued irrigation, with boracic lotion and free drainage, is sure to do well. I have detailed this case at length, in order to illustrate the fact that the absence of bad teeth is no guarantee against antral mischief. As I have before said, antral empyæma is commonly unilateral. To make this paper complete, however, it is necessary to state that in a few cases Ziem found the affection to exist on both sides. So far I have not met with such a case, but the diagnosis could, no doubt, be arrived at without difficulty.

In conclusion, it remains to refer briefly to the treatment. I do not think that Stoerk's suggestion to treat these cases by the introduction of a tube into, or, if this be impossible, up to the natural opening between the antrum and the nose, and thus to irrigate the cavity, is at all advantageous. Manifestly, this line of treatment, even if in the end successful, must entail so much time and trouble as to weary the average patient. No doubt the establishment of a counter-opening is more scientific and satisfactory. Such a counter-opening may be made through the socket of a tooth, through the alveolar process, or finally through the outer wall of the nose near its floor, as suggested recently by Mikulicz. After a free drain has been established, irrigation of the antrum must be undertaken, and continued until the case is cured. For injection, such fluids as boracic lotion, or water containing small quantities of iodine or chloride of zinc, may be used, according to the indications afforded by each particular case. Whether the insufflation of powders in addition (boracic acid, iodoform, etc.) would prove more rapidly effectual, I am not yet prepared to say.

DISCUSSION.

The PRESIDENT said he could corroborate much of what had been communicated by Dr. M'Bride. In many of these cases there was no pain, and the patient had no suspicion of antral disease. Sometimes the frontal, ethmoidal, and the sphenoidal sinuses might contribute as a means of keeping up the nasal discharge, but none of the sinuses were subject to the same irritation or liability to morbid conditions as the antrum. He believed that when carious or loose, or in any way suspicious teeth existed, with symptoms of an ozænic ten-

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dency, they should be extracted. The antrum retained its secretion much more than the other sinuses. Its floor was really lower than the palate, and was deep behind the posterior bicuspid, while the opening into the meatus was near its roof. In this way he had no doubt that in these antral cases, by its retention the mucus or mucopus became very offensive. When these cases required opening, he thought it was best done above the external alveolar process. Such an opening closed much easier than one made through the socket of a tooth which often healed with difficulty, a sinus or fistulous opening continuing long after it was necessary. Opening the antrum was not required in every case. Where no obstruction or distention existed, he had seen removal of the offending teeth followed by disappearance of all the symptoms. In some jaws the antrum was not easily opened from the outside.

Professor ANNANDALE considered that the most important and practical pointof Dr. M'Bride's paper was that such cases were often not discovered. He was quite willing to admit that improved rhinoscopic examinations might be an assistance in their diagnosis, but he was inclined to think, from his surgical experience, that there were always local symptoms which pointed to the presence of pus in the antral cavity. His experience was that if there was a discharge from one nasal cavity, the antrum on that side should be carefully examined, and invariably he had found that a practical surgeon accustomed to examine carefully would be able to find some tenderness or slight enlargement, showing something wrong with the antrum. The last case he saw was that of a young gentleman, who had undergone a variety of treatment for a nasal dischage without curative result. He found slight tenderness, and opened into the antrum, and was rewarded by finding pus. He was strongly of opinion that the best treatment was to open into the cavity above the alveolar margin. If there were diseased or loose teeth, the fangs of which were causing irritation, it was well to remove them, but his experience was that the opening above gave better and quicker results as regards cure. He found a considerable difference in regard to the size and even the position of the antrum. In some cases he had had to puncture very near to the floor of the orbit to effect an opening.

Dr. HORSLEY asked if Dr. M'Bride had any experience as to which of the various openings recommended, through the socket of a tooth, the external alveolar process, or through the nose, as practiced by the German surgeons, gave the best result?

Dr. COTTERILL believed that the best plan was to attack the condition from the outside, the alveolar, not the nasal surface. The opening into the antrum would be on too high a level if made from the inside. Some cases treated by the internal opening were reported as cures in some of the medical journals a short time ago, but without sufficient details to enable one to judge. In the last case he had operated on, there was no enlargement and only slight tenderness on pressure. He made the opening through the canine fossa. The teeth had been removed some time before, and the sockets filled up, and an opening through them would have been more difficult He had the cavity syringed out twice a day through a glass drainage-tube covered with rubber at the end. This was done for a fortnight till pus ceased to appear. Five days after removal of the tube the cavity had filled up again. It was reopened, the tube reinserted, and left in for about three weeks with a successful result.

Dr. AITKEN mentioned a case in which there was no difficulty about the diagnosis. The pus had made its way through the hard palate, and gave rise to two swellings in the roof of the mouth. Behind these swellings was a small ivory exostosis. The first attempt to open into the cavity was made by an endeavor to extract a stump, thought to be the canine, but owing to the pain, and to the fact that the antral wall was so thin, the antrum was opened

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above the alveolar margin. Immediately that was done the stump dropped out, showing the considerable part the atmospheric pressure plays in maintaining the teeth in their sockets. A drainage tube was kept in for about ten days, and the cavity was washed out with an antiseptic solution introduced by means of a Eustachian catheter attached to a syringe. The case was mentioned to show the great importance of free drainage and perfect asepticism.

Dr. M'BRIDE thought Professor Annandale was inclined to criticise the value of the rhinoscope in those cases on the ground that the experienced surgeon would find external evidence of the presence of pus in the antrum. But he had shown that in them there need be no bulging, no swelling, no pain, no tension, though there might be some congestion of the gum, and in all but one of his cases there had been diseased teeth. Unilateral discharge was not sufficient evidence of antral affection, inasmuch as it might be due to syphilis, rhinoliths, foreign bodies, or other causes. He thought that in many cases the arch of the palate might be taken as a guide to the size and position of the antrum.

The PRESIDENT said the antrum varied very much in its capacity, shape, and position in different subjects and at different periods of life. Where the arch of the palate was high it was very much more out of reach. It could not well be opened through the socket of the canine tooth, as its limit anteriorly was about the second bicuspid. It did not seem, however, to be what might be called antral teeth alone that were connected with this affection, as removal of diseased incisors had been of marked benefit in some cases, probably by the removal of diffuse irritation throughout the superior maxilla.

Mr. A. G. MILLER said he had once suffered from an acute abscess of the right antrum. He got great relief from the use of warm fomentations, and found that when he lay on his left side he was relieved of pain, and the matter trickled away slowly and intermittently. He cured himself by lying in bed in this position for two or three days. He thought that something of the kind might be tried in chronic cases along with antiseptic irrigation of the nares.—*Edinburgh Medical Journal.*

THE BERLIN MEDICAL SOCIETY.

THE TREATMENT OF GALL STONES.

Dr. ROSENBERG related his experiences in the treatment of gall-stones, by olive oil, as recently recommended from America. A patient suffering from marked biliary colic, that had continued for five years, and had proved refractory in spite of all treatment, including a "Trinkkur" in Carlsbad, and in whom the pain was very acute, was given a dose of 100 grammes of olive oil (about 3 ozs.) at night. In the morning there were found in the stool three concretions, one the size of a grain of linseed, the other two smaller. Some days later a second dose was given of 180 grammes, and in the stool that followed 180 concretions were found, varying in size from a pin head to a hazel nut, and after a third dose 243 stones. The patient's troubles soon after this began to diminish, but they did not entirely disappear. She took in all, in five doses, 820 grms., of olive oil, and 629 stones were counted in the evacuations that followed. The gall bladder, which before was the size of the fist and projected beyond the edge of the liver, diminished so far that it could be no longer palpated. It was assumed that the oil did not act by exciting peristalsis of the intestines, but by passing directly into the gall bladder and softening the contents. Vomiting only once resulted from the administration.

After Dr. Sonnenburg had shown a case of osteo-sarcoma of the femur,

Dr. CASPER introduced the subject of the Radical Cure of Prostatic Enlargement and Tumors by Electrolysis. He remarked at the commencement that the treat-

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ment that had hitherto received the sanction of the most distinguished authorities, Thompson, Guyon, Dittel, and Socin, was merely palliative, although such treatment had been acknowledged to be powerless in arresting the progress of the disease. Attempts had been made in various directions, such as extirpation or crushing of the excrescence from the urethra, injection of iodine or carbolic acid from the rectum, excision by the galvano-cautery from the urethra, or diminution of the mass by ignipuncture from the rectum. Again, the gland had been removed wholly or in part by the high operation. Although more recently such distinguished surgeons as Thompson, von Langenbeck, and Benno-Schmidt, had expressed the opinion that in suitable cases prostatectomy should be done in the future, the speaker was of opinion that a less formidable procedure should first be given a trial. Such a procedure he believed he had found in electrolysis. Since this method of treating tumors was first introduced in 1864 by Nélaton, it had been successfully employed by others. As the decomposed constituents of the prostatic tumor could not make their exit externally, but must of necessity be removed by absorption into the tissues, he had performed experiments on animals with a view of ascertaining whether such absorption entailed any dangers as regarded embolism or otherwise. He treated four rabbits by passing the negative electrode, with cutaneous portion insulated, into a mass of muscle, and continued a current of 15 to 20 milliamperes for 10 to 15 minutes. No sign of embolism followed. The testicles of dogs were treated in the same way, and after the lapse of a year the animals were perfectly healthy, except that the testicles were reduced to a small residuum. He then proceeded to carry out the treatment on men. The patient was placed on the side, the bowel washed out with a 1-1000th solution of sublimate, and the external electrode, 480 ctm. square, placed on the abdomen. The internal electrode, properly guarded, was then passed to the spot selected for puncture, the mucous membrane smoothed out and inserted in the direction desired. The current was then turned on, gradually increasing from 10 to 25 milliamperes; after the lapse of five minutes the needle was partially withdrawn, and passed in another direction, and then after another five minutes in another, so that the sitting altogether lasted fifteen minutes. The pain was quite "nominal"; the current caused a slight burning and pricking in the penis. The application was repeated at intervals, twenty or more times. Retention of urine and bladder irritation were simultaneously treated by the classical methods. Four cases were thus treated, and of this number two were much improved both subjectively and objectively. In the third case a slight improvement took place; the fourth was no better, and in consequence of the insulating material of the electrode getting worn a vesico-rectal fistula resulted, which the author, however, claimed to have been of life-saving service to the patient. In the two cases that were improved the prostate distinctly shriveled up, the residuum of urine after micturition was reduced from 140 or 300 cctm., to 20 or 40 cctm., and the urine only required to be passed every three or four hours, so that a fair night's sleep became once more possible. Pain during micturition also ceased, and the general condition became much better. *Résumé:* The operation was free from danger *quoad oitam.* The danger of a fistulous opening remaining might be excluded. In cases not too far advanced improvement might be expected. Four groups of cases afforded no prospect of improvement by electrolysis. First, those in which the prostate was enlarged rather in thickness than in length or breadth, in which a constant residuum of urine was left after micturition. Second, cases in which immoderate dilatation of the bladder had long existed, so that it did not properly contract even when reduction had been affected in the

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size of the prostate. Third, cases of so-called concentrically hypertrophied bladder, where the hypertrophy of the bladder walls was so great that the viscus could scarcely act as a container of urine at all. Fourth, those cases in which the hypertrophy of the prostate was so small that it could not be detected from the rectum. Here the case was one rather of a growth at the neck of the bladder, that closed the opening like a valve, and could not well be reached from the rectum. Finally, those cases were to be excluded in which the symptoms, though similar to those of enlargement of the prostate, were due to other causes. In the majority of cases of prostatic enlargement he was convinced that electrolytic treatment would reduce the size of the organ and obviate the dreaded consequences entailed by the condition.

Dr. FURSTENHEIM agreed with the speaker that nothing could be expected of electrolysis in cases in which retention of urine was always present after micturition. Where there was incomplete paralysis, a certain atony and insufficiency of bladder power, the case was different, benefit might reasonably be expected. He recommended the use of the speculum for introducing the needle, so that the "disagreeable accident" of puncture of the numerous hæmorrhoidal veins present in old people, might be avoided.

Dr. VON BERGMANN believed more in digital exploration than in determining the amount of hypertrophy by the measure of the residuum of urine. Patients that came into the clinic with prostatic enlargement, and had their bladders washed out twice a day always improved in that respect. It did not depend entirely on the hypertrophy, but on the other disturbances that were relieved by treatment.

In reply, Dr. CASPER said that there could be no doubt as to the diminution in size of the prostate by electrolysis; this could always be attained. He believed that the residuum of urine left in the bladder was the only reliable measure that gave a constant result. The dangers of the electrolytic operation were not very great, as in the four cases the rectum was punctured more than forty times, and all the four patients were rejoicing in good health.

FOREIGN CORRESPONDENCE.

THE FESTIVAL OF THE EIGHT HUNDREDTH ANNIVERSARY OF THE UNIVERSITY OF BOLOGNA.

Mr. EDITOR: Bologna, the great metropolis of Italian studies, has celebrated the eight hundredth anniversary of the foundation of her famous university in the presence of the royal family and of representatives of the learned of every nation. Never before was seen such a reunion of famous talent as that of the 12th of June, 1888, in Bologna. It is this circumstance which gives to the festival such universal interest. To make it such the rapid means of communication which we possess in our day have contributed in a special way, these being the result of many of the scientific studies which eight hundred years ago, in the long and historic night of human thought, Bologna had awakened and promoted, during which time Italy predominated over the world in science, letters, and arts, as she had done in arms during the Roman epoch.

How brilliantly shone the star of the Athenæum of Bologna where Irnerius, first, then Bulgar, Gregorius, Accurtius, and many other champions of free thought taught is told by the histories of the schools of Paris and Padua, and many others which later on rose to celebrity. From Hungary, from Germany, and from France pupils came to hear lectures at Bologna, although the means of conveyance were of the most meagre character, strikingly in contrast with the marvelous celerity of communication which brought to Bologna teachers and students from France, Germany, England, Spain, Switzerland, Roumania, Austria, Hungary, Greece, Belgium,

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Russia, Portugal, and United States of America.

The University of Bologna is the most important one of Italy. It stands third in the number of its students in the list of twenty-one universities which Italy possesses, Naples having 4,083 students, Turin 2,102, and Bologna 1,338.

The exact date of the origin of Bologna's university is really unknown. It is supposed that Emperor Theodosius was the founder; some attribute this honor to St. Petronius, while others give the honor to Irnerius, who from the documents extant must be admitted to have been the oldest teacher. Although it is thought that the year 1088 is the exact date of her origin, it is said there are documents in existence which tend to prove that it existed many years before. Others fix the date in 1111. At any rate, the University of Bologna is the oldest in the world. The approximate dates of foundation of some of the celebrated universities of Europe are as follows:

Bologna, Italy, 1088 (?); Paris, France, 1230; Valencia, Spain, 1209; Naples, Italy, 1224; Padua, Italy, 1228; Rome, Italy, 1245; Oxford, England, 1249 (?); Cambridge, England, 1254 (?); Montpellier, France, 1284; Pisa, Italy, 1343; Prague, Bohemia, 1340; Pavia, Italy, 1360; Vienna, Austria, 1365; Heidelberg, Germany, 1386; Cambridge, United States, 1636; Berlin, Germany, 1810.

In those times there were no buildings which could be called a university. Each professor gave his lectures at his home, or in halls rented for the purpose. It was not until about the year 1562 that they taught in the present building, called the Archigymnasium, where all the receptions, addresses, etc., were held during the present festival. The University of Bologna at first taught only laws, as the school of Salerno taught at that time medicine and that of Paris theology. But soon the number of studies increased and teaching divided into four faculties, that of law, theology, medicine, and fine arts. The university gained fame which spread throughout the world. It is said that at one time the number of students was over 10,000. At the present time this university ranks as the most important one in Italy. It possesses fine and rich museums, elegant and well-supplied laboratories, and an eminent faculty composed of men highly esteemed at home and abroad.

The enthusiasm, joy, and cordiality which prevailed among all the students and representatives of every nation, the pomp and the impressive character of the festivities held a few days ago, my pen is incapable of describing. The presence of the royal family, always ready to participate in the joy and happiness of their people, raised the enthusiasm to the highest pitch. On the 9th of June the foreign students began to arrive. At the depot every train on arrival was met with loud cheers and hurrahs. On one side there was a committee of professors welcoming their guests; on the other, hundreds of students receiving their companions with ringing cheers, embracings, handshakings, and congratulations of every sort.

Bologna was unrecognizable; the streets were full of people and animated; every train brought thousands of persons. The hotels were crowded and the foreign representatives were lodged in private homes. Crowds of happy students were seen in every street and recognized by their caps. The law students had on blue caps; those of medicine, red caps; the mathematicians, green, and those of philosophy and letters, white. All these colors mixed together produced a most lively effect.

The reception ceremony at the university building was really solemn. The large court-yard was packed with students, the windows fronting it were filled with ladies. The first lines were occupied by the representatives of the Universities of Berlin, Leipsic, Gratz, Athens, and Edinburgh. The rector of the latter university wore an elegant robe, and he was loudly cheered. The

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president of the students' committee, Mr. Pietri, spoke first. He welcomed all the companions present from so many parts of the civilized world. A representative from Athens University responded in the French language, saying that the respect of the Greeks for the *Alma Mater Studiorum* was great; then followed a representative from Leipsic dressed in a rich and showy robe; two other students stood at his side. One of them spoke in Italian, saying that the scientific world had sent their representatives to Bologna to make their contribution to the great occasion. A representative from Berlin spoke in a similar strain and was loudly cheered when he said that Germany loves Italy and wants to be her companion in adversity as well as in prosperity. Representatives from Gratz, Rome, Paris, etc., spoke in a similar happy manner and were all greeted with applause. This ceremony ended, they all went to Brunetti's theatre to hear the grand welcome oration delivered by Professor Pauzacchi. The humorous part of the day was the arrival of Padua's students with a mastodonic ox with gilt horns and covered with rich drapery. The Turin students brought a large barrel of good wine, with a student on top of it representing Bacchus, the god of wine; two other students represented a bacchant and a satyr. Next followed the students of Pavia with a phenomenal Parmesan cheese with a student on top representing the goddess Ceres. The procession was a mile long, and as all students were dressed in rich costumes the sight was indeed bewildering.

On the 10th there was a reception by the royal family from Rome, and the unveiling of a grand monument, dedicated to Victor Emanuel, occurred. In the evening there was a gala night at the theatre.

But the 12th of June will be remembered as the most glorious day that Bologna has ever witnessed. It was the greatest day of the festival. From early morning the professors began to meet at the university building. Their different costumes and languages blended in the common brotherhood of science. All were dressed in their rich college robes. The whole city was grandly decorated, and the streets were packed with people eager to witness the grand procession, which began to move about 9.30 a. m. First came the local associations with flags, followed by the mace-bearers of the University of Bologna carrying the old and artistic silver maces. Then came the students of Bologna with their colored caps, followed by the students of the Italian and foreign universities with their respective flags.

The Italian professors came next, dressed in black robes with ermine and wore the doctoral cap; they were accompanied by their respective mace-bearers dressed in black with short pants and carrying rich silver maces.

The professors of foreign universities followed. First, came those from the United States. The New York professors made a grand impression, being dressed in rich dark-red robes, with impressive caps on their heads. The professors of Baltimore, Cambridge, Iowa, Ithaca, Cornell, New Haven, Philadelphia, Michigan, Virginia, and Wisconsin were loudly cheered. South America had representatives from Buenos Ayres and Santiago.

Professor Raymond West represented the old University of Bombay, India, and was dressed in a damask robe, ornamented on the chest and shoulders with silver bands.

Australia had a professor from the University of Adelaide, and New Zealand had one from Wellington.

Then came the representatives from the European universities, as follows:

First, the professors from Austria-Hungary. Professor Abta, rector of the University of Kolosvar, was dressed in a rich Hungarian costume, and wore around his neck a chain ornamented with precious stones.

Then followed the professors of Cracow with large robes of black velvet; then

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those of Buda-Pesth, Czernovitz, Gratz, Innsbruck, and Lemberg, all wearing black gowns. Those of Prague and Vienna wore blue velvet.

The professors of Brussels, Gand, and Liege wore black robes.

Then came the professors of Copenhagen.

France was represented by a strong body of doctors dressed in elegant violet, red, yellow, and orange colored robes with caps of the same color. Paris, Aix, Bordeaux, Caen, Lille, and Lyons were represented.

Germany came next with a great variety of costumes. The Professors of Berlin had on black robes with red collars and caps of the same color. Those of Bonn, Breslau, Erlangen, Göttingen, and Greifswald wore black robes with mantles of red velvet richly ornamented, which made them look like cardinals.

The doctors of Halle, Heidelberg, Jena, Kiel, Königsberg, and Leipsic were dressed in dark red; those of Marburg had on black robes with a large mantle of blue and violet colors richly embroidered. Lastly, came those of Munich, Rostock, Strasburg, Tübingen, and Würzburg.

Then came the representatives of Athens, Greece.

The professors of England, Ireland, and Scotland followed; those of the Universities of London, Aberdeen, Cambridge, Durham, Glasgow, Manchester, Oxford, and St. Andrew's wore large robes of red color with white collars; those of Dublin, Galway, and Edinburgh had on violet robes and blue collars.

Holland had professors from Amsterdam, Leyden, Utrecht, and Groningen. Portugal had representatives from the University of Coimbra, and Roumania from those of Bucharest and Jassy.

Russia was represented by professors from the Universities of Dorpat, Helsingfors, Kasau, and St. Petersburg.

Spain by professors from Madrid, of Granada, and Oryiedo in black gowns with scapularies, which made them look like so many monks; some had a red scapulary, others violet; they carried rich gold chains and wore caps covered with falling fringes.

Sweden and Norway had professors from Christiania, Lund, and Upsala; one carried a little sabre at the side and a pointed cap; and the other a silk hat made up in little folds.

Lastly, came the professors from Switzerland—the Universities of Bâsle, Berne, Geneva, and Zurich.

Next came the great flag of the University of Bologna, followed by all the professors of this university.

This fantastic procession, after passing through the principal streets, amid cheers from every side, proceeded to the Archigymnasium. Every professor was presented with a little branch of laurel and oak. The large court-yard of this historic Archigymnasium was covered by a great pavilion ornamented in red and white. In the centre there was the coat-of-arms of Bologna, with the motto, *Resonavit fama per orbem.* The throne was placed under a large red-velvet pavilion. At the right of the throne was placed the city flag, with the motto, *Libertas;* to the left the banner of the university, with the motto, *Alma Mater Studiorum.* At ten o'clock the procession entered the court-yard, and all took their respective places. The royal family also entered and took seats on the throne, the king being dressed in a grand uniform of a general. A song, composed expressly for the occasion, was sung by a chorus of voices, after which the rector of the university, Professor Coppellivi, made a short address of thanks. Honorable Baselli, Minister of Public Instruction, then delivered an oration, during which he was frequently interrupted by applause. The poet, Professor Joshua Carducci, was next introduced, and read an address and spoke in glowing terms of the past and present studies of the University of Bologna.

The foreign representatives spoke next. Professor Vogel, of Vienna, speaking in

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Italian, hailed Bologna as always keeping lighted the lamps of knowledge. He presented as an homage a parchment and deposited it in a basket placed before the rector.

Klinger, professor of theology in Buda-Pesth, speaking in Latin, presented the good wishes of Hungary, and concluded by saying, "May the School of Bologna long live and prosper."

Pictak, of Lemberg, presented some books.

Rivier, of Belgium, spoke in French and in behalf of his country, and congratulated Bologna on her having the oldest university. He presented some books and parchments.

Professor Scharling, in behalf of the Danish doctors, presented some books.

Professor Hamilton, of Lund, spoke for Sweden and Norway. Speaking in Italian, he said: "At one time they said, '*Ex oriente lux*,' but the Scandinavians say, '*Ex Italia lux*.' Mountains and seas divide us, but virtually we are connected by science, truth, and liberty." He also offered parchments.

Nation after nation followed. When each name was called out the enthusiasm increased in an astounding manner.

When the French doctors came forward dressed in their splendid robes the applause was deafening. Professor Bufnoir, of Paris, mentioned, in an eloquent manner, the relations existing between the universities of Paris and Bologna. They deposited rich parchments.

Professor Hoffman, of Berlin, spoke in Italian and said that half a century ago he was a student in Bologna. He hailed Bologna as the *alma mater* of studies. All the German professors presented rich parchments and books.

Professor Arethens, of Athens, Greece; Professor Jebb, of Cambridge, England; Vasconcellos, of Coimbra, Portugal; Professor Jonesc, of Jassy, Roumania; Professor Wesselofsky, of St. Petersburg, Russia; Piera, of Madrid, Spain; Vogt, of Geneva, Switzerland; Vanzim, of South America all made addresses and presented books and parchments.

Professor Stickney, of Hartford, United States, made a fine address and was loudly cheered.

Lastly, Professor Gandien, of Bologna, made a speech in Latin. He saluted all the guests and wished prosperity to every nation. Amid cheers and applause the ceremony ended at two o'clock.

In the evening over 700 students were seated at a banquet. Telegrams were received from Christiania, Stockholm, and other places. Toasts were given in all languages. President Pietri hailed the companions of all nations, and especially those of Athens, the mother of arts and science. He hoped that France, Germany, England, Spain, and all other nations would work for the international federation of the people. He said that America teaches the world and that Europe ought to imitate the United States. These last remarks were greeted by a tremendous applause. Gladness and good feeling prevailed on all sides.

Over 400 professors of foreign and local universities were also entertained at a banquet offered by the government at another place. Toasts were also made in all languages hailing the king, Bologna, Italy, and all nations.

On June 13, the professors and students met at 9 o'clock a. m., at the Archigymnasium for the distribution of the honorary diplomas to the eminent foreign scientists. The royal family entered at ten o'clock and the ceremony commenced. The square was packed with an elegant and select audience. The sight was impressive. The band having played a selected piece of music composed expressly for the occasion, Professor Pelliccioni, a Greek scholar of reputation, made an address in Latin to the graduates. The presidents of the different faculties called the names of their respective graduates. First, came the philologists, then the mathematicians, the

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jurists, and lastly the doctors of medicine. The rector of Bologna's university presented to each one the diploma, and the doctoral ring of the athenæum, into which each graduate introduced a finger and immediately withdrew it.

Lastly, Professor Ceneri, a prominent legal gentleman, in a brilliant address, saluted the scientists present. He was congratulated by the king for his able speech, and warmly cheered by the vast audience.

At 1.30 p. m. over thirty associations, preceded by bands of music and flags, moved in line through the principal streets and entered the theatre to hear the address of Professor Giovanni Bovio, on the life of Giordano Bruno.

The prettiest episode of this memorable festival occurred on this day at the concert hall of the exposition building—the distribution of presents made by the Bologna ladies to the students. The ladies numbered at least 500, and the students preswere not less than 2,000. The students on their part offered flowers to the ladies. A true festival of courtesy.

June 14 was dedicated to the commemoration of Galvani, which was held at the Archigymnasium in the presence of the foreign and local invited guests. Professor Albertoni made the address. He said that it was a happy thought to commemorate the centenary of Galvani with the centenary of Bologna's athenæum, by commemorating and remembering those men that made it famous. Galvani, more than any other scientist, excited the attention of the world, because with his discovery it was thought that the vital force was found. He demonstrated experimentally that the brain is the seat of intelligence. He mentioned the experiments and works of Galvani. He compared the teaching of those times with the present. He spoke of the modern progress of physiology. He alluded to many unsolved problems and urged the present generation to solve them, concluding that the best recompense of work is the eternal memory that history consecrates to them.

After this address the foreign and Italian representatives were presented with special medals commemorating the celebration of the centenary of Bologna's athenæum. The committee then proceeded to place crowns of laurel on the monument, on the house, and on the tomb of the great and immortal scientist.

Thus ended this remarkable festival, which has been solemn in every way, and a true declaration of the gratitude of every nation to the University of Bologna: *mater alma studiorum.* With this commemoration Italy has intended to confirm her past glories to the world, glories of science, of letters, and of arts; and it is right that while in her full triumph, with her new capital, Rome, she affirms to the world her power and greatness. A. LAGORIO.

CHIAVI, ITALY.

EXTRACTS AND ABSTRACTS.

RE-ESTABLISHMENT OF THE MEDICAL PROFESSION.

In the annual address to the Massachusetts Medical Society, June 13, 1888, B. Joy Jeffries, M. D., of Boston, said: It is very generally agreed that the lawyer, the minister, the squire, and the physician, do not hold the same relation to the community as they formerly did. As that position was one of trust and confidence, it well behooves us to carefully study the causes that have broken it down, and correct if possible any fault lying at our door. On the other hand it is equally our duty to right ourselves before the community, if our efforts have again placed us in a position to be trusted and confided in. Moreover, if the community misjudge the whole from a part of the profession, it is the duty of those truthfully striving, not to have their labors misjudged and injured by any false sentiment toward others not so acting.

There are of course many natural causes

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for the three professions not holding their ancient position. They are now but three of many existing in the world. Science and art and technology have introduced distinctly professional fields of study and occupation.

In the older compact and more isolated communities the diffusion of knowledge was less. The three professions represented nearly the whole of it. Moreover, the diffusion of falsehood was less, though credulity remained. All forms of medical chicanery have increased and widened with the means of reaching by the public press and the post-office a larger circle of the ignorant and credulous, poor and rich. Wealth does not now as formerly include knowledge and common sense. Money is more easily gathered than knowledge, and its accumulation does not preclude the continuance of its owner's previous credulity or gullibility. Moreover, money renders its sudden possessor more dogmatic in his superstition and infallibility. The poor man is open to teaching and advice, the rich man thinks that his wealth places him above both of these.

In the village life of former days any question of medicine, natural science, or natural philosophy was referred to the physician, and his decision taken. The common sense imbibed in medical education and practice enabled him to expose the falsehood started by cupidity and kept alive by credulity. The same confidence was reposed in the minister as to all matters of morality or theology, and in the lawyer as to property and legislation. But we are not concerned with them. Our own position alone should occupy our thoughts and efforts.

Why have the profession as a whole lost their hold on the community and the respect naturally theirs? In this country democracy has brushed away any glamour of office, all that which hedges in a class or an organization. Even that which clings longest, namely any peculiarity of manner or dress which separated us from others, has melted away before the sun of common sense and general intelligence. When the physician possessed more knowledge, more education than those about him in his community, he was respected for these as he should have been. But now-a-days those about him have in the general advance of education gained upon and only too often outstripped him. In the struggle for existence the doctor goes to the level that he is entitled to by his education and the refinement this gives him. If the ranks are filled with men without education, except that which they are supposed to have medically, then the laity finding that such are destitute of the former, very fairly doubt the existence of the latter. Good breeding and a good education are not now as formerly the natural attributes of those legalized by a diploma. Cheap and charity medical schools have multiplied over our country to a greater extent even than seminaries, colleges, and so-called universities. The profession well know that these medical schools are but local advertisements, and that in their struggle for existence they underbid each other, not only as to medical education, but also receive as students and give medical degrees to men comparatively destitute of even a common education. The various State legislatures grant these medical schools the power to issue such degrees, which the laity ignorantly accept as a proof of education, and that is what they are sold and bought for.

Now, in course of time the laity have found out that the holding of a medical degree, being a doctor, does not preclude ill-breeding and lack of education. And they have naturally arrived at the conclusion that a medical man may be pretty low in the social scale, gauged by education, hence that the study and practice of medicine mean but little.

To give every individual in the community, without respect to color or sex, an opportunity for the best education he can attain to and his ability deserves, is a noble charity on the part of the State or the pri-

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vate citizen. For the public or private institution to sanction by its seal ignorance and quackery in any form, is simply cheating the community for the moneyed benefit of the few and unworthy. The poor and unlearned are deluded by the title of doctor, and the delusion has the sanction of the State by the judge on the bench deciding that one medical degree is as good legally as another. The laity know nothing of and cannot judge medical matters, and hence are easily duped into giving State sanction to any and every form of rascality under the guise of medical teaching, from a Druid college to a Christian Scientist's bucket shop, thus helping to fill our grave yards and insane asylums. The community demands protection in everything except precisely where it needs it, namely, from ignorance, prejudice, and superstition.

It is from such causes, it seems to me, that the medical profession as a whole has dropped in the social and educational scale, lost power and lost influence. The public recognize that it is largely entered into as a trade or business, and that many of its members hold degrees and diplomas purchased of the mills, legalized it is true. But so are the dram-shop and saloon legalized. The professors in our law schools well impress on their students that law has nothing to do with justice. One doctor is the same as another to the public to such an extent that even men of attainment and culture fail to distinguish the honorable and well-educated physician from the quack and the charlatan.

I have found many truly scentific men treating us most unfairly in this respect. They tolerate licensed or unlicensed pretenders in medicine without separating them from those of the profession whose knowledge and proved ability really place them on an equality with themselves. They give credence to and put faith in, associate with, men whose ignorance, charlatanism, and want of breeding are such as they never would admit them in their own field of study. Men of science in other branches receive from no class greater recognition and respect than from the best men in our profession, who know enough to appreciate knowledge and its attainment. It is but fair that we ask of them such discrimination as they employ toward each other, and not attribute any protest on our part to narrowness, professional jealousy, etc. It can only be that they as members of the laity imbibe prejudice from inability to discern and judge of medical matters.

The teachers and the examiners in the best medical schools all over the world are demanding greater educational requirements of men desiring to study medicine. And this most rightly, because it is impossible to teach medicine to those without thorough foundation. They cannot learn, and to give them diplomas half earned but adds to the load the educated portion of the profession have to carry. The refinement which education gives is needed in the practice of medicine. Education of a high standard is needed for the doctor to hold his proper relations to the community, besides a thorough knowledge in his calling.

Medicine can only recover its former just position when the world is forced by its existence to recognize that to be a graduate of a good medical school means to have the education of our best universities in addition. The world will not now believe and trust in a man's medical knowledge unless they have proof of other education besides, which adds force and power and refinement. The doctor must be, can be, and will be, a man of science. As such we can ally ourselves with the great body of men striving for knowledge and seeking truth. From the lack of this a large part of our profession is not distinguishable from the man of business or the tradesman, perhaps perfectly respectable, but perfectly commonplace, and worthy only of the position trade and business take in the community.

The avenues to wealth or official power are quite outside our calling. As physicians we cannot compete with trade or business. But this is our common lot with

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other scientific men. Wealth is a mighty power but it falls palsied before knowledge. Slowly but surely, I believe, is the former yeilding place and respect to the latter. Certainly Crœsus is never more flattered than when treated as possessing knowledge, education, and the refinement it brings.

Are we not in honor bound to do all in our power to bring up the standard of education and the standard of professional requirements in our calling? Educators tell us that it would be a good thing for the world if nine-tenths of our so-called academies and little colleges were swept away and merged in large and strong institutions. Certainly it would be a good thing for the world and for our profession if nine-tenths of the medical colleges were swept away, and what was good in them gathered into a few great medical universities, placed where teaching and study could best be carried out.

Why should not this society quickly raise its standard of requirement for admittance, such as would render membership a proof of educational refinement and professional knowledge? I grant you that moral courage and backbone are needed to do this. But I insist that the possessors of these exist among us, and await only support from the majority. Let them have it, and this at once, or else the best men in the profession must separate and form themselves into a body known and respected for possessing what the others do not. May this necessity never come in my day. But we must sympathize with the man of scientific attainment and educational refinement, forced to recognize another who is ill-bred and half-educated simply because the latter holds also a medical degree which insures nothing of these. That is trades union.

I hear expediency, desire to conciliate for ultimate purposes, compromise, saying, perhaps with bated breath, we cannot be so high toned, we cannot expect doctors to have the refinement of education, or more professional knowledge than enough to get along in practice. I answer at once, with no hesitation or reservation, that there is an increasing number of men in our ranks who have educational refinement and high professional attainments.

Again, I hear it said that the requirements of a physician's vocation tend to break down his literary life and hinder any advance in his medical study. This is but an attempted defence of the ignorant who never should have been allowed to enter our ranks, and who have done so for trade through chicanery. No one of the laity has to descend to the low offices the sacred duty of a physician calls upon him to perform for his patient. Such never detract from his refinement or his dignity. Circumstances may call upon us at times to do any manual or menial work. We elevate it, not degrade ourselves, by performing it as a part of the burden we assume with our title. * * *

Education is the teaching the hands to work at advantage and the brain to think rightly. Certainly this applies to medical education. Proper medical education can not be given the ignorant young man, and only young men should be made doctors. If the hands and brain have not been trained how to work they can not be properly employed in the higher field of human activity occupied by the physician. The advance in modern education comes not from additional amount of facts poured into the school boy or student, but from applying improved systems by which brain work tells better.

It *is* possible to teach the power of observation, deduction, the application of principles, and sharpen the brain, the wits to seize the time for action. The medical schools admitting young men without such preparation, even if they attempt to teach well and thoroughly, never can turn out the best physicians.

The young man in this country who wants to go into medical trade thinks he has only to learn a little and get his diploma as he would fit up a grocery shop. The

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community thinks so too. The so-called medical colleges scattered over the country are ready to help him for the fees he can scrape together to pay them. This tradesman opens his shop for custom, and the world looks upon and patronizes it like any other shop. But in medicine, as in all the true professions, work but commences with the responsibility of occupation, and never ceases while that lasts. Better for a man if it lasts through his life.

Now these medical colleges, backed by the community, want the profession to foster such trade doctors, and have us accept them as colleagues. These men themselves claim our support and recognition, and would pull us down to their level to help their trade. The time has amply come for this to stop. The physician must rest on his individuality, on his learning and his power of using his knowledge.

If you carefully observe the men teaching and learning in this and the two adjacent buildings,* and then compare them with the men teaching and learning in the building further on, in which we are, or should be, all interested, there will be found a difference of a peculiar and subtle character, the difference between the medical and the technical man. Perhaps only our profession can understand this. I have found very shrewd men in other professions, even the allied ones, much puzzled by it.

Here in technology, arts, sciences aside from us, the student learns facts, physical laws, principles, and their adaptation to physical conditions, and relies on set and fixed laws and rules for action. His work in life is a continuation of this. Here two and two make four, and can always be depended on as making four, mathematically deducible and proved, as we say.

Now in the other building the medical student learns also facts, physical laws, and natural principles. But in practice he has to apply them to unnatural conditions, disease. And he learns that the conditions of disease render mathematical application of seemingly fixed principles impossible. Two and two may not make four, and he must be able to grasp this fact. The study of medicine is for this, and four years is little time enough to learn the needed facts, their application, and, so to speak, misapplication. This it is which besides all else separates us from other professions, and but puzzles them. They see us arriving at results from data that their knowledge and experience prove mathematically can *not* come. This elusive something is the spirit of medicine; he who has it most will most successfully be able to detect and cope with disease, be the most successful physician.

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Since the slavery rebellion our nation has settled down to its civilization. Has our profession advanced with increasing education? Not the whole of it, for the reasons I have given. But there are many more men than ever before giving their strength and lives to the accumulation of knowledge in our calling and its diffusion. Never before have there been so many men so highly educated in medicine as now. I cite as proof, the papers and discussions at our society meetings, the articles published in our journals, the respect our best men are gaining from the thorough medical scholars and teachers of England and the continent. I cite further the greatly increasing number of physicians in the various branches of medicine who are becoming good and valuable teachers among us. Never before have we had such competent and thoroughly taught practitioners under thirty years of age. Never before have we had so much true scientific work going on in our profession. The graduates of even our best schools are not competent to stop their work, but seek in Europe the best teachers, to compare their acquirements, and bring back to us the highest medical culture of the old centres of learning.

* Buildings of the Institute of Technology and Natural History Society.

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Should these men be classed with the ill-bred and half-educated graduates of the remaining nine-tenths of the medical schools of this country? Because they have the same title, must they be put on the same plane as the business and trade doctors our communites are overrun with? Yet this is precisely the way they are at present treated and regarded by the laity, who make no distinction between one physician and another. And this by all classes of the laity, high and low, rich and poor, learned and unlearned.

The scientific man is often now startled by finding "a doctor" familiar with his own department. It is quite a revelation to him. Why, nearly all the work in the various sciences outside ours, now followed as professions, was formerly done by men, graduates in medicine.

* * * * * *

I am free to ask, Is our school and others like it doing *all* needed to fit men to practice medicine, to use their hands and brains professionally? The success and the growing number of poly-clinics and post-graduate courses, right among our best schools, seem to me to positively prove that the student and the graduate find there is something more to be learned, and something worth giving time and money for. What better argument for the need of an additional year's study, however this may have to be arranged in reference to the under-graduate department of our universities and colleges?

If there are men who can as teachers attract earnest students outside of the regular courses, I do not see why they cannot be employed as teachers in the schools of four years' curriculum. This extra outside teaching I think has hindered the adoption of a four years' course as compulsory. It has fostered unfortunately the worst form of trade doctors among us, namely, the "two to six weeks'" fully fledged specialist with any "scope."

I disregard the objection to four years on the score of cost. The men who built our present medical school did not stop for this sort of objection, and time has proved them right. I record here my conviction, and I wish I could record the conviction of this society, in the support of the teachers and workers trying to elevate the standard of the profession, and thus, for only thus can it be done, replacing our calling in the respect of the laity, at the same time completely separating us in their judgment from the bands of quacks, trade doctors, *et id genus omne.*

It is perhaps naturally expected of me here to say something in favor of those much *used* and much abused physicians called specialists. Whatever may be said against them, it must be admitted in candor that to stop the work they are doing would check the scientific advancement of the profession as a whole. Specialism means work, seeking science, knowledge, truth. It cannot be said that they keep from the profession or the world the results or benefits of their labors.

The same is now unfortunately true of the specialties as of the general profession. All I have said as to the laity's inability to distinguish between the true and the false applies with ten-fold force as to specialists. Physicians recognize this even in their own inability to decide between pretence and talent, knowledge and ignorance, experienced training and assumed.

I greatly respect other specialties, and cannot see how we can get along without them. I have to thank the men of talent and standing practicing them, and have always found them as willing to help me as I them. * * *

It was said in praise of a physician who died some years ago, that he was never seen in any place his profession did not call him. It was a proof of devotedness to his calling. In the then relations of the doctor to the community perhaps it was wise and necessary. All that has certainly passed away, never to return. We are now forced to be *en rapport* with the world,

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its people and affairs, and, I believe, with a gain thereby to our usefulness in the practice of our profession. The more a man knows outside of and in addition to his medical work, the better physician will he be. Such knowledge will never hurt his professional judgment, and will very often give him thereby a better opportunity to enforce what he knows to be necessary.

When a patient finds that we are by no means ignorant of *his* special work or business, can express an intelligent opinion thereon and have some interest in it, then that patient is now-a-days much more likely to respect our professional advice and follow it. We have to guide and govern men and women, and we cannot without respect from the governed.

The community somehow still have an idea that physicians as a class are not capable of anything else than their own work, without business capacity, not practical. This certainly is not now the case.

Not only is a physician now-a-days allowed, if I may so say, to have some knowledge of the world of affairs, but he is beginning to be granted some familiarity with literature or with scientific pursuits, even when the latter are not directly connected with medicine. The profession at large and a part of the laity now begin to recognize the value of scientific thought and scientific study in our calling. It does not now hurt a man to be known as scientific—that is, seeking knowledge by mental labor. There was a time when this was a positive detriment, and militated against a man's opportunity to gain a livelihood.

In the great world of scientific work our profession is needed and has its place. Its labor is special and separate, but calls strongly for thinkers, observers, truth-seekers. This is the study of medicine, whilst the practice calls for the greatest endurance, patience, forbearance, toleration, and courage, physical perhaps as well as moral. A thoroughly educated physician is a man of no mean parts, and will be able to hold his own with others in the world's affairs. His training makes him a *gentle*-man.

We should not resent but welcome the coming into the profession of young men with wealth and means that render them independent of work. Even if they practice, they have the right. It was once said with some truth that the possession of thirty thousand dollars would kill any man's advance and work in our calling. That is not true now. But the young men I speak of are most valuable in softening the spirit of gain and strife. There is work in abundance for them, and to advantage of us who must delve for our living. Their position enables them to do for us what we most need but can not accomplish. They have hours for work without anxiety.

To study medicine and take a degree in a first-class medical school after a collegiate course is a training most valuable. The knowledge gained is aside and besides all other, placing the graduated physician at very great advantage over his literary, artistic, and other professional friends. Moreover, the study of medicine is earnest, serious, mentally stimulating, and gives a man breadth of character. It teaches him the value of work. One of the class of young men I am speaking of, whom I had advised to follow our profession, said to me with great satisfaction and self-respect: "To graduate here at our school sickens one for loafing and idleness."

The student learns that life and happiness mean work, work for others or self, but work, without which life at last is found not having been worth the living. The graduate learns also that there is no place in medicine for the Bohemian or the dude; that all attempts to act or imitate the one or the other are wholly out of place, as any of the peculiarities which were the marks of a physician in gone-by days. Even the white cravat worn at other times

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than when socially demanded, is now pretty well recognized as a medical hypocrisy, Chinese mourning for departed patients. The true physician does and should dress as any other quiet gentleman.

Fortunately for us in this present day, and for the communities in which we live, the absence of means does not preclude the possibility of preparatory and medical education, and that of the highest grade. The State and the individual citizen has now given every man a chance who has brains to use and is willing to use them. It is the State's and individual's *charity*. Harvard University is an endowed educational charity of which every graduate is a recipient.

But absence of means must be an incentive to action, to labor, to study. For myself I know that any good which I have done for the community or for myself has been done from the pressure of complete dependency on my own action. I believe every man finds this the case in life, hard as it may seem to him: Necessity is the mother of invention and the father of success.

In the *Kampf um Dasein* let us join hearts and hands and brains for the re-establishment of our beloved profession.

BOOK REVIEWS AND NOTICES.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES: A Yearly Report of the Progress of the General Sanitary Sciences Throughout the World. Edited by CHARLES E. SAJAUS, M. D., Lecturer on Laryngology and Rhinology in Jefferson Medical College, Philadelphia, etc., and seventy associate editors, assisted by over 200 corresponding editors, collaborators, and correspondents. Illustrated with chromo-lithographs, engravings, and maps. 1888. Philadelphia and London: F. A. Davis, publisher.

The object of this work, as stated in the preface, "is to collate the progressive features of medical literature at large, and clinical data from countries in which no literature exists, and to present the whole once a year in a continued form prepared by writers of known ability. As such, it is expected to become a helpmate to the practitioner in his efforts to relieve suffering and to assist the investigator by correlating facts."

The work for this year appears in five octavo volumes of about 350 pages each. The table of contents of each volume is upon the back of the cover, for the convenience of ready reference. At the end of the work there are three indices in parallel columns, viz., a general index, a therapeutic index, and a bibliographical index.

The articles give abundant evidence that the work has been carefully done.

The editor is to be congratulated that in so large an undertaking he has been able to so nearly accomplish the design. His efforts will be gratefully appreciated by a host of our busy confrères who have not the time to sift the wheat from the chaff. The editor recognizes the fact that a publication of this nature appearing only once in a year greatly detracts from its own usefulness by often not presenting material till long after it has become public property. To overcome this drawback a quarterly journal is published in connection with the annual —*The Satellite*—which is intended to present to the reader all the new important facts published during the preceding three months, and especially those bearing upon the prevalent diseases of the season.

The annual and its satellite have fairly started upon their yearly and quarterly revolutions. We hope that each succeeding round will bring them to us more symmetrical, more nicely balanced, more nearly perfect.

A SYSTEM OF OBSTETRICS BY AMERICAN Authors. Edited by BARTON COOKE HIRST, M. D. Vol. I. Philadelphia: Lea Brothers & Co. 1888.

The first volume of this publication, including the contributions by Drs. Engelmann, Hirst, Jaggard, Busey, Penrose, Reeves, and Parvin, has been issued.

The history of obstetrics could not have been intrusted to abler hands. Dr. Engelmann has produced an admirable summary of his subject. The physiology and histology of ovulation, menstruation, and fertilization, the development of the embryo, have been fully and ably treated of by Dr. H. Newell Martin. Dr. Hirst has complete chapters on the development, anomalies, monstrosities, diseases, and premature expulsion of the ovum. Dr. Jaggard writes with his usual clearness of the physiology, pathology, signs, and differential diagnosis of pregnancy. It is a disappointment that so learned an obstetrician as Dr. Jaggard could express himself no more positively in reference to the question of changes in the neck of the gravid uterus than to say "The weight of evidence seems to us very much in favor of Bandl's modified theory." It is now seventy-five years since Madame Boivin wrote the sentences which follow:

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"In fact, the neck of the uterus at term alone forms more than a third of the cavity of the uterus."

"Accoucheurs are continually speaking of the internal orifice in the last months of pregnancy. They forget that the os internum has long been effaced."

"The circumference of the uterus at term, measured at the top of the uterine portion of the neck (which is then five inches above the external orifice), is about thirteen inches."

It is fifty years since Guillemot, in referring to hour-glass contraction, wrote:

"When the hand is introduced the cervix is found projecting into the vagina, and so disfigured that it resembles a section of large intestine; but about five or six inches above this the finger is arrested by a kind of stricture which is the wrinkled and contracted internal orifice."* The views of changes occurring in the cervix deducible from these two authors are perfectly consistent, it seems to us, with every fact regarding the anatomy, physiology, and pathology of the uterine neck, before, during, and after labor. And yet, such is the force of preconceived opinion that to-day not a single author of a work on obstetrics has completely emancipated himself from such apparently irrational and inconsistent theories as were put forth by Stoltz in 1826.

The views of Boivin and Guillemot, current in Chicago for the last fifteen years, have been accepted with all their conclusions by a number of physicians of this city. So far as is known, nothing has been observed in their practice to contravene their adopted opinions. It is to be hoped that in the next volume of the American System of Obstetrics, the writer upon placenta prævia, taking a hint given by Madame Lachapelle three-quarters of a century ago, will locate the placenta below the os internum.

The conduct of labor and the management of the puerperal state are treated of in an able and interesting manner by Dr. Samuel C. Busey, in a style that pleasantly recalls the writings of Dr. Meigs.

The mechanism of labor, and the treatment of labor based on the mechanism, are treated of by Dr. R. A. F. Penrose. Though these subjects are presented in a manner vigorous, thoughtful, and fresh, many readers will doubtless have occasion to dissent from some of the positions taken by the author. For example, it would seem to us that Dr. Penrose takes an exaggerated view of the difficulties and dangers of occipito-posterior positions. We object to the advice given by the author in reference to the conduct of the obstetrician where he has not succeeded in delivering in these cases by the several methods suggested After a consultation, a mere formality, he is advised to perforate at once, or "to abandon, instantly, the case." This conduct might be very proper for Dr. Penrose, but for the average practitioner it would be impolitic, unwise, and censurable. So far, nothing has been demonstrated in the suppositive case except that the means adopted have not succeeded in the hands of the attendant in charge. To the consultant, as skillful as Dr. Penrose, success might follow any one of the means with which the inexperienced operator has failed. In midwifery there is no call for dogmatism of opinion and obstinacy of purpose. Nor, it may be added, is there in the exigencies of the lying-in chamber need of "heroism" or "heroics"; better than these is calm courage.

The article on the use of anæsthetics in labor, by Dr. J. C. Reeve, is excellent. Dr. Parvin writes the chapters on the anomalies of the forces of labor with his usual ability.

This volume is replete with facts of the greatest interest to the obstetrician, and we commend it accordingly.

* Cazeaux.

PRACTICAL ELECTRO-THERAPEUTICS. By WILLIAM F. HUTCHINSON, M. D. 8vo. Pp. 247 Philadelphia: Records, McMullin & Co. 1888.

The author's motto, "That he who runs may read," is well exemplified in this book. It is a concise treatise upon electro-therapeutics stripped of theoretical considerations. The relative merits and demerits of the different varieties of batteries and electrical apparatus, and the manner of using the various appliances and the results to be expected from their use, are briefly considered. The chapters upon the special medical and surgical uses of electricity contain many clinical notes. The author has availed himself of his rich experience to show how and under what circumstances treatment should be conducted, often entering into the minutest details in explaining the technique.

The book will be a very useful one to the many members of our profession who have not been able to spare the time to master this subject, and it will certainly be read with pleasure and profit by the many who are already familiar with the facts of which it treats.

HENRY'S POSOLOGICAL AND THERAPEUTIC Tables, containing the Doses, Action, and Uses of the Medicines in the British Pharmacopœia, with poisons. Third edition. Revised and enlarged. Pp. 83. 12mo. Edinburgh: Maclachlan & Stewart. London: Simpkin, Marshall & Co. 1888.

Is a small dose-book based upon the British Pharmacopœia It has in addition to the list of preparations of drugs with doses, action, and uses, a catalogue list of diseases with drugs that have been found useful in each, and a list of poisons, their action and their antidotes.

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Edw. Jenner.

EDWARD JENNER, M. D., LL.D., F. R. S.

"My opinion of vaccination is precisely as it was when I first promulgated the discovery. It is not in the least strengthened by any event that has happened, for it could gain no strength; it is not in the least weakened, for if the failures you speak of had not happened, the truth of my assertions respecting those coincidences which occasioned them would not have been made out."

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The Medical Journal and Examiner.

VOLUME LVII. SEPTEMBER, 1888. NUMBER 3.

ORIGINAL COMMUNICATIONS.

DESTRUCTION OF THE TROPHIC FUNCTION AS AN ELEMENT IN DETERMINING THE LOCALIZATION OF INFECTION, ESPECIALLY IN THE JOINT AND BONE DISEASES.

BY BAYARD HOLMES, M. D.

The inflammatory diseases of the joints, like most diseases elsewhere, depend upon the presence of a parasite. In a diseased individual not all the joints are affected. The susceptibility of a particular joint must depend on some anatomical, physiological, or pathological peculiarity. It is my purpose to call attention to one of the minor causes, which in a few cases seems to result in a point of least resistance, and thus determine infection.

In quite a large number of cases of tubercular joint-disease, where excision has, and where it has not, been performed, the patients have ultimately developed symptoms of posterior spinal sclerosis. This phenomenon is capable of various explanations. We might think that the tubercular infection was secondary to syphilis, which is often the primary cause of the sclerosis. Allowing this, there are cases of non-inflammatory destructive joint-disease occurring early and late in *locomotor ataxia* which are not so accounted for. They are thought to depend on the destruction of so-called trophic centres in the cord. It may not be amiss to review the proofs of the existence of the trophic function of the nervous system.

(1) The presence of an adequate supply of blood is recognized by all as necessary to the vegetation of a part. It seems, also, that a part which does not perform its inherited function soon falls into a condition of atrophy. Besides these common forms of altered growth, there occurs after the injury of a nerve trunk, or after its section, a peculiar form of perverted nutrition, which is observed in the skin as a glazing, in the muscles as a degenerative atrophy, and in the bones and joint-ligaments by corresponding involuntary changes. Such changes sometimes follow injury of the cord, and in these cases there is no interference with other nervous manifestations. From a consideration of these and similar cases, and experiments on animals, the idea of a trophic function has been deduced.

If the nervous system has a trophic function, it may be exercised through the sensory or motor nerves, or through a separate set of nerves. These nerves may derive their trophic impulse either from nerve centres which perform this office alone, or from centres having a mixed function, *i. e.*, from motor or sensory centres.

In order that the trophic function of a part may be abolished, and all other ner-

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vous phenomena remain undisturbed, it is necessary to pre-suppose one of the following conditions:

1. Unmixed trophic centres and mixed nerves.

2. Mixed centres and unmixed trophic nerves.

3. Separate trophic centres and separate trophic nerves.

Let us consider this subject from an embryological, anatomical, physiological, and a pathological standpoint.

a. That some influence is necessary to the division and growth of a cell, is seen in the ovum, which requires impregnation. Balfour has shown that the nerve-fibres are outshoots of the central nerve-cells. If this is always the case, our first and second suppositions are absurd.

b. Anatomy has little to offer. The best staining methods have so far failed to discover any difference in the appearance of functionally different nerve-fibres (Schwalbe). At most, the sum of all the nerve-fibres which enter or leave the cord is greater, by far, than the number which pass from the cord into the medulla.

c. Physiology only demonstrates that there is a separate trophic function in some animals, at least, and in some localities, which may be interrupted without disturbing sensation, motion, or special sense in the part. Thus the section of a certain portion of the fifth nerve determines a haziness and then destruction of the cornea on the same side without any interference with sensation. Section of the nerves surrounding the second cervical ganglion in cats results in the loss of all the hair over definite areas of the ears and head. This takes place uniformly in the course of a very few days. Microscopical examination demonstrates the degeneration of the nerves leading up to the hair bulbs, which are represented only by spots of pigment. These investigations have been carried out very completely and carefully by Joseph, and he is led to conclude that there are not only trophic centres but also trophic nerves.

Section of the cord through definite segments does not seem to interfere with the trophic function of the paralyzed or anæsthetic side. Destruction or removal of a portion of the motor area in the brain does not result in trophic disturbance in the paralyzed area. There are also other physiological demonstrations which lead to the conclusion that the trophic nerve-centres are not situated in the brain.

d. Pathology presents a great array of facts which it is very hard to explain without the existence of the trophic function. In *polyomyelitis anterior acuta* certain multipolar nerve-cells in the anterior gray horns are uniformly degenerated, as well as a portion of the anterior nerve-roots. The same pathological condition is present in progressive muscular atrophy. In injury or destruction of a large nerve-trunk it is a common thing to see glazing of the skin, loss of hair, defect in the nails, anchylosis of joints, atrophy of muscles, and disappearance of the *panniculus adiposus*, which conditions do not occur in loss of function through the destruction of the cerebral motor-area.

After compression of the cord by a displacement of the vertebræ, when death does not immediately occur, a number of very peculiar trophic disturbances are observed. Bed-sores occur in different places, depending upon the seat of the destruction. The muscles waste, and the resulting connective-tissue contracts, and greatly deforms the limbs. Repair goes on very slowly, or not at all, after the slightest injury. The circulation is modified by changes in the blood-vessels.

After puncture of the cord with a sharp instrument, in the region of the second lumbar vertebra, complete destruction of the ligaments of the knee-joint has been observed to follow in the remarkably short space of eight days (Sonnenberg).

In that peculiar and rare tropho-neurosis which sometimes affects one side of the

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face after the acute exanthemata and diphtheria, termed Progressive Facial Hemiatrophy, we have what seems to be a destruction of the trophic function of the fifth nerve, like that so frequently produced artificially in the laboratory.

These phenomena are easily reconciled if we admit the existence of trophic centres. The embryology of the lower animals indicates that the nerve is simply a continuation or an outgrowth of the nerve-cell, and so the conclusion is forced upon us that there are also trophic nerves. This is further demonstrated by the experiments of Joseph. Then I believe that the conclusion is inevitable, which was stated in the third proposition at the beginning of this section, *i. e.*, "*There exist separate trophic centres and separate trophic nerves.*"

In regard to the location of these trophic centres, it is safe to say that some of them are situated in the anterior gray horns; others are found in the posterior gray horns or in the ganglia which are located on the cranial and spinal nerves.

(2) In volume 8 of the *American Journal of Medical Sciences*, Dr. J. K. Mitchell called attention to some forms of "rheumatism" which he supposed to be due to a disease of the cord. Acting on this idea he recommended and practiced a very rational mode of treatment: In one case, cupping the spine where the nerve-trunk which supplied the affected limb entered the cord; in another, using immobilizing apparatus. At least one case was associated with locomotor ataxia. The whole matter was forgotten for many years until Charcot gave his classical lectures from which the disease has taken its name.

There has been a lively discussion as to the cause of this disease. Surgeons have paid very little attention to the evidence of the neurologists, and have always looked upon the existence of a neuropathic joint-disease with a condescending distrust. Therefore, all the cases have been described by the neurologists to whom the patients had previously come with evident nervous symptoms. This explains why so few cases have been observed as the initial symptom of disease of the cord.

Only a few post-mortem examinations have been made. A great majority of the cases have been reported many years, and by those who practiced very imperfect methods of examination. On account of these imperfections in the literature, many of the questions which might perhaps be answered by the recorded cases, if more accurately observed, must still be considered under judgment.

We have considered the evidence, and conclude that there are trophic nerve-centres and trophic nerves. It seems that those that control the nutrition of the skin are located in the posterior gray horns of the cord, while those that control the nutrition of the bones and joints are located in the anterior gray matter, or in the ganglia on the posterior nerve-roots. When these latter trophic cells are destroyed, either by mechanical violence or in the process of disease, the joint or bone or other tissue supplied by them fails in some way to vegetate. The cells of the joint structure undergo involution, degeneration, necrosis, and are more or less completely removed. If the destruction of these trophic cells is incomplete, the consequent changes in bone or joint fall short of complete destruction. There is no reason why such trophic changes in a joint may not originate either from a focal circumscribed disease in the gray matter, or from the involvement of the trophic centres in a system sclerosis.

It is well known that the initial symptoms of posterior spinal sclerosis are very different in different cases, which ultimately resemble each other closely. Thus, in one case — considering now the condition of the sensory nerves alone—there is no inco-ordination. The patient stands and walks well both with the eyes open and with them closed. He is able to recognize slight differences in weight, but the delicate or superficial sensibilities, as determined by the anæsthesiometer, are much

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reduced or entirely wanting. In another case where sensibility to light touch is unimpaired, co-ordination of motion is lost more or less completely, except as controlled by the eye, thus showing the destruction of the deep sensibilities—that is to say, in the first case there is loss of cutaneous sensibility, in the second, of muscular sensibility. Similar comparisons may be made in regard to the thermal sense, and the cutaneous and deep reflexes. When these cases have advanced far enough, the different forms of sensibility are completely or almost completely destroyed, and cases which were at first scarcely recognizable as the same disease become almost identical. In one case the deep muscular sense is first lost; in another, the sense of pain; in another, the sense to light touch; in another, the thermal sensibility; in another, deep reflexes; in another, the superficial reflexes; and in still another, the condition of perspiration. Then follow the remaining sensibilities one after another, as the centres in the cord which elaborate these impressions are destroyed.

In the same manner, we may suppose that the trophic cells are first destroyed, and that the resulting joint-disease is the first symptom of sclerosis. When the other trophic centres are unaffected, the other parts of the limb are unaffected.

We might expect that a joint on one side being affected, the centres of the trophic influence of the other, lying so near in the opposite gray horn, would be likely to suffer also. This appears to be the case. Out of one hundred and ten cases which form the basis of this study, symmetrical joints were attacked twenty-six times or in about one-fifth of the cases, while in only nine cases were asymmetrical joints affected (Rotter).

In support of this hypothesis there are many interesting clinical observations. Joint-diseases have already been recognized as the result of contusion, section, puncture, gunshot wound, and compression of the cord. In syringomyelitis, joint-diseases exactly resembling those of tabes have been observed. In the growth of a tumor of the cord, joint-disease has suddenly appeared.

Dissection of affected joints shows a remarkable disappearance of the nerves.

Experimental joint-disease has not been produced.

Adamkiewicz has demonstrated a very complex double circulation for the ganglion cell, which may have some influence in determining its destruction by thrombosis or embolism. It is, briefly, an enlargement of a little artery into a hollow sack, in which the cell is found. This sack is perforated in three or four places for the passage of the poles of the cell and for the vein. Thus the ganglion-cell is bathed on all sides by arterial blood. The venous blood passes to the interior of the cell and there surrounds the nucleus as a bladder-like cavity. It gives off one or two branches, which perforate the arterial sack and empty into the nearest vein. An idea of the arrangements of the blood-vessels may be obtained from Figure 155, Volume II of Quain's Anatomy, 1882. The drawing was made for a different purpose.

The Neuropathic Joint-Disease occurs in two forms, the early or mild form, and the later or destructive form. Only a few cases of the former have been observed.

Perhaps the most important symptom of the disease is the sudden, painless, swelling of the joint. In a few hours, or, rarely, in the course of a day or two, the joint fills with a serous exudate, which is in some cases mixed with a small quantity of blood. At the same time, or after a few hours or a day, the soft parts about the joint become swollen, but the skin retains its normal color. In the case of the knee, the swelling extends to the ankle below and to the middle of the thigh above. Over this whole area the engorged veins show through the skin. The swelling resembles a myxœdema, and it is probably also due to a central nervous lesion. The swelling of the joint is not always the first symptom recognized. There are a number of cases in which painless

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crepitus preceded swelling; and, in a few cases, spontaneous dislocation of the joint was the first recognizable symptom. The course of the disease is as painless as its beginning. When the knee is affected the patient goes about with the swollen and crepitating joint until the deformity and destruction have rendered the limb mechanically useless. The patient complains of the deformity rather than of the functional destruction. Exceptionally the disease begins with lightning pains in the limb, which are soon followed by the joint destruction.

Very often the knee-joint is unexpectedly dislocated without any assignable cause. Then examination shows the loss of the ends of the bones, or of the ligaments. Injury of the blood-vessels has caused alarming and almost fatal hæmorrhage into the connective-tissue space or into the joint.* These injuries are ordinarily painless. The first evidence the patient has of the mischief is the diminished mobility of the joint, or its swelling or discoloration. The resulting deformities are sometimes *genuvalgum* or *genuvarum*. When both knees have been affected, one has presented one deformity and one the other. In spite of such a condition the patient is able to go about on the waggling and creaking joint on account of the coincident anæsthesia. When the deformity has resulted in the total loss of the function of the joint, the application of splints puts the patient on his feet, and enables him to go about with stiff legs. Backward luxation of the tibia has been observed in fewer cases than would be expected from the frequent flail-like condition of the joint.

Very few cases have been observed in the mild or initiating stage. They begin as painless swellings of a joint without loss of function, and may continue in that condition for years. There is evident reason why they have been so rarely observed. They are painless, and occur in patients who are not under the care of physicians for other diseases. Hence they are considered trivial by the sufferer, and the advice of a physician is not sought. The profession, too, has paid little attention to neuropathic disease of the joints. There is every reason to think that they are more frequent than reports would indicate.

The number of neuropathic joints that become infected with the pus-microbes is not small. Out of Rotter's 112 cases seven suppurated, and in three cases no source of the infection could be assigned except auto-infection.

Blum (Charcot): Two years after the discovery of a serous fluid in the shoulder and knee joints by puncture, the case came to section, and they both contained pus.

Boucheret: Spontaneous dislocation of the hip-joint. Came to section on the thirty-first day of the disease. The joint was found infected.

Ponfick: Hip-joint. Unexplainable infection.

When we consider that the average duration of this disease is less than two years, the infection of seven or even of three cases by metastasis out of 112 cases is certainly a remarkably large percentage. While the anatomical changes in the rarer or milder form are less extensive, they are the same in kind, and the fact that the disease then extends through years, increases the chance of infection very materially. This is especially the case in tubercular infection, which is so slow in producing recognizable lesions. I am not able to find a case of tubercular joint-disease which occurred in a joint which was previously recognized to be the seat of neuropathic degeneration. In almost any table of a hundred cases of tubercular joint-disease one or two can be found that manifested signs of *posterior spinal sclerosis* within a few years after the

* The hæmorrhage which is sometimes found in the joint is due to mechanical destruction of the degenerated tissue containing a little blood-vessel.

The luxations are pure destruction luxations, and in no way due to the ordinary mechanical causes. This destruction may be in the bones, in the ligaments, or in the cartilage. The bones may be so shortened that they slip by one another in the ligaments like the ends of a flail. When the ligaments have been most affected by destruction the still healthy bones have nothing to hold them together except the soft parts. The cartilages are affected only with the other structures, and then slowly.

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appearance of the joint-disease. We may in these cases suspect that the first anatomical change resulting from the central lesion was the degeneration of the joint apparatus. This produced a point of least resistance, determining the seat of the tubercular disease which first brought the patient to the surgeon. Then the other symptoms followed slowly and unrecognizably while the patient was under treatment for the joint affection.

Such a case is reported by Kummer (Deutsch. Zeitschr. f. Chir. 27, p. 7): A man of fifty died of tabes four years after the appearance of tubercular olecronitis.

The consideration of this subject leads to the following suggestions:

Central trophic disease does produce peripheral, involutionary degeneration, which determines the localization of infection in the peripheral part infected.

In all cases of joint disease, especially when painless, the possibility of a neuropathic origin should receive attention, and careful examination of the various nerve-functions should be instituted.

In all cases of multiple joint-tuberculosis, especially when symmetrical, the fear of a primary neuropathic origin renders the prognosis less favorable.

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125 STATE STREET.

EDITORIAL.

THE NEW NATIONAL QUARANTINE LAW.

The outbreak of yellow fever at several of our Gulf and South Atlantic ports has stimulated Congress to another spasmodic effort looking to the protection of the public from contagious and infectious diseases. The fearful epidemic in the Mississippi Valley ten years ago was followed by legislation creating a National Board of Health, and conferring upon it powers, and providing it with means to combat the dangers which then menaced the whole country. The Board formulated rules and planned measures which, in their operation, have secured to the country almost complete immunity up to the present season. It is true that when the emergency had passed and the threatened dangers diminished, the support to the National Board was withdrawn, and the machinery which it had created and the methods which it had devised were adopted and used with but little change by the Marine Hospital Service. The National Board still exists and its duties and powers are adequate to meet the emergencies. It is, however, not a political body, and its machinery can not be used for the purposes of free trade, nor for protection, only so far as human life and health are concerned. There is, therefore, for its support, no strong motive which appeals to the average Congressman. It is a gratification to know that something has been done, and that in the right direction. Provision is made in the act which has recently received the approval of the President, and which will be found elsewhere in our columns, for the establishment of quarantine stations at various points along the Atlantic, Gulf, and Pacific coasts to which infected ships may be sent for disinfection; in other words, "ship hospitals." This was one of the most important measures inaugurated by the National Board of Health in 1879. It is almost certain that in time the whole

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subject of maritime quarantine will be placed under the direction of the General Government as it ought to be. The interior States are quite as much interested in this matter as those along the seaboard; in some instances, indeed, the interest of the States remote from the sea is greater than that of those at which vessels discharge their cargoes of freight and immigrants. This is apparent to any one at all familiar with the history of the epidemics which have invaded this country from abroad. The temporary control of this matter by the Marine Hospital Service may be a convenience, but there should be devised some more special and appropriate bureau or department, with well-defined powers and duties, and provided with the means necessary to not only cope with infection from abroad, but also to protect individual States from dangers that may threaten them from neighboring States. Millions are appropriated to the scientific and economic interests of our people, and we hail with pleasure this wise fact, but it would be a mark of still greater wisdom to regard human health and human life as a large part of the national wealth, and to give for their protection something of the same thought and means that is done for the preservation of our cattle, the development of our varied industries, and the scientific investigation of our natural history.

This will only be reached when there shall be a department of public health, or at least a bureau which shall be charged with this special subject. So far, the questions of vital statistics, including the life-tendencies, the morbidity, mortality, etc., have been under the direction of the Department of the Interior, and appear once in ten years with the innumerable other facts of the census reports, the accuracy of many of which is open to question. Protection from epidemics has hardly occupied the attention of our National Legislature excepting in the presence of the scourge. Such action has always been regarded as provisional. It is time that we should give to this subject the same attention that we do to national dangers of other kinds. "In peace prepare for war."

THE PARIS CONGRESS FOR THE STUDY OF TUBERCULOSIS.

The names of the physicians and veterinarians who took an active part in the recent congress for the study of tuberculosis, which was held at Paris on July 25 to 31, 1888, are mainly French. Denmark, Scotland, and Egypt are other nations represented.

Some of the work reported is simply confirmatory of work and opinions long since placed before the profession; some of it is new, and much of the reports consists largely of expressions of opinion upon facts long ago generally accepted.

Of the various subjects discussed by the congress, of great interest and importance, one is the question of the relative frequency of the occurrence of tuberculosis among the lower animals, and of its transmission from them to man. M. Bang, of Copenhagen, contended that milk from tuberculous cows contains no bacilli of tuberculosis unless the milk glands are tuberculous, and that the tumefaction which the localized infiltration causes in the udder can be detected easily and early.

M. Grissonnauche claimed that from the first, pulmonary tuberculosis in cattle is characterized by tumefaction of the retro-pharyngeal glands; there is interrupted respiration, and that a harsh friction sound is heard in auscultation. The cough is short and may be induced by sharp percussion blows upon the thorax, which evidently cause pain.

It was conceded that the degree of heat usually employed in cooking beef is not sufficient to kill the bacilli. It was admitted that the danger of infection to man through eating tuberculous beef is very slight, in Paris about six in one thousand, but nevertheless there were only three votes against a resolution which declared

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that all animals affected in any way with tuberculosis should be seized and condemned as unfit for food.

A very interesting and able discussion of the relation of animal tuberculosis to consumption in man will be found at page 43 of the July number of the JOURNAL AND EXAMINER in a report of the proceedings at a recent meeting of The Medico-Chirurgical Society of Edinburgh.

At the Paris congress the opinion was expressed that all cow's milk should be boiled before being given to infants.

The custom of drinking fresh blood and eating raw meat among consumptives was strongly condemned because of the danger of infection from these sources.

M. Cornil, in a paper on "Tuberculosis of Mucous Surfaces," said that the discovery that the tubercle-bacillus can penetrate the unbroken mucous membrane is one of extreme importance. He reported a case of tuberculosis of the cervix in a woman who had no other tubercular lesions. He introduced tubercular matter into the vaginæ of several guinea-pigs, and later found upon examination that the corresponding uteri were tuberculous.

M. Salles read a communication in which he reports the finding of a new microbe in the lungs of phthisical patients, which is distinct and separate, may be grown in pure cultures, and which, when injected into the circulation of rabbits produces death, with uniform and characteristic symptoms.

M. La Forre reported that as the result of investigations upon the subject he had concluded that the influence of a tuberculous father is greater than that of a mother similarly affected.

M. De Brun, of Beyrut, Syria, in a communication on "The Antagonism Between Malarial Fever and Tuberculosis," affirmed his belief in such an antagonism. In his opinion tuberculosis is a disease of communities which are drained and in good sanitary condition. Sometimes one is boldest in expressing opinions about things of which he knows least, but nevertheless, and although M. De Brun's colleague, M. Piot, of Cairo, agreed with him, and the report mentions no attempts at refutation of such ideas, this seems like a bit of careless observation and worse deduction.

The president of the congress, M. Chauveau, in the course of the discussion of the subject, said, that in his opinion the dangers of tubercular inoculation through vaccination against variola, are so infinitesimal in comparison with the benefits of that procedure that they are not worthy of consideration.

M. Arloing reported unsuccessful attempts to secure immunity from inoculations of tubercular bacilli, by means of inoculations of both material from "scrofulous" glands, and of typhoid bacilli.

As the result of recent observation, M. Cornil and M. Toupet reaffirm the already fully established observation that all pathological tubercular tumors are not necessarily evidence of the disease tuberculosis.

This meeting was evidently one of interest and importance, notwithstanding the fact that much of the ground which was discussed has long since been amply and conclusively cultivated by their Teutonic neighbors.

CHOLERA AND INOCULATION.

A cable message from Paris, to the secular press of this country, recently announced that "The scientific event of the week, of course, has been the Russian Dr. Gamaleia's alleged discovery of a method of anti-cholera inoculation," and the reported statement by Pasteur that "I am so thoroughly convinced of Gamaleia's success that I would to-morrow, were there need, allow a test to be made upon my own person, and in so doing should run small risk." After the notoriety obtained in Spain by Ferran, and the outcome of his method of inoculation, the medical profession and the public have been slow to accept assurances of se-

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curity from cholera, or even from septicæmia, as a result of inoculation, but the confident statement, alleged to have been made by so good authority as Pasteur, and the method of procedure of Dr. Gamaleia, may give some warrant of hope that prophylaxis may yet be secured in some such way against that scourge.

Pasteur is quoted as having said further: "Of course there was nothing novel in the idea of inoculation against cholera. The difficulty lay in applying the well-understood principles of vaccination to this new case as I had already applied them to hydrophobia, and as some one will one day apply them to tuberculosis and other diseases." All will wish that the confident anticipations of this eminent scientist and experimenter may be realized and that he may live to witness the fact. In the mean time, for the sake of humanity and science, let us hope that the claims of Dr. Gamaleia for his discovery will not share the fate of those made by the once notorious Ferran.

YELLOW FEVER.

Yellow fever has again appeared in the South, and the authorities at Jacksonville, Florida, are battling with it without any satisfactory result thus far. The lateness of the season when it appeared and the exceptionally cool weather of this summer give hope that, with the efficient quarantine regulations that it is said are being enforced, the disease may be confined to the territory now infected, and that it may soon be under control. The occasion affords an opportunity of testing the method of treatment suggested by Surgeon Sternberg of the United States Army, as the result of his recent investigations in the West Indies.

SOCIETY REPORTS.

CHICAGO MEDICAL SOCIETY.

REGULAR MEETING, May 7, 1888.

The President, J. H. Etheridge, M. D., in the chair.

Dr. J. L. GRAY presented a specimen of gunshot wound with rupture of the heart. The points of entrance and exit were quite small. The point of entrance was between the fifth and sixth ribs; the rupture was upward. The ball passed through the body and was taken out between the tenth and eleventh ribs. It was not at all marked—no scratches on it.

The integument was not much lacerated. A peculiar point about the injury to the pericardium was that it was so small.

Dr. FRANK CARY: A short time ago I read a case reported by Dr. Wescott, of a patient in the insane asylum who took a grain of atropia.

I distinctly remember a somewhat similar case which occurred at St. Luke's Hospital a few years ago. A woman about 24 years of age was acting in the capacity of assistant nurse, and one morning went to the medicine chest ostensibly to take some cough sirup, but she took down the sulphate of atropia bottle, a four-ounce vial which contained a solution of two grains atropia sulphate to the ounce. A patient who was in the room said she saw her take two teaspoonfuls. A few moments after she had taken the medicine and gone to work it was noticed that she was staggering about the ward. The nurse had her placed in bed, and the interne was summoned. He gave her ten or twelve grains of tannic acid. The pupils were widely dilated and the patient nearly unconscious when he was called into the ward. She took the poison at eight o'clock in the morning, and the interne saw her at nine. He gave her, also, in less than fifteen minutes, one-eighth grain morphine hypodermically, with a grain and a half of tartar emetic; fifteen minutes later he gave her another one-eighth grain of morphine, and one hour later one-fourth grain. The breathing at this time was quite noisy—there was a blowing expiratory sound. At this time he gave two ounces of the sulphate of magnesia. At 10.30 I saw the patient. The corners of the mouth were

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drawn down; she had a pinched expression, and there was a peculiar flush of the whole face. Morphine was given in doses of one-eighth to one-fourth grain every two hours from ten o'clock until two. At 2.30 the patient vomited slightly; the respirations were very shallow, from eight to ten a minute. Shaking her produced no effect whatever, but by wetting a towel in cold water and slapping her it was found she would take deep inspirations. At this time hypodermics of brandy were given every few minutes. At five o'clock the respirations were shallow and the pulse 120. At 6 o'clock p. m. the pupils first reacted slightly to the hypodermics of morphine. At 7.30 the patient was completely paralyzed, the teeth chattered, and she had those peculiar tetanic convulsions which in the lower animals follow poisonous doses. The catheter was passsd several times during the day and small amounts of urine were withdrawn. During the night the catheter was passed without any result. At eleven o'clock the patient again vomited a small amount; the pupils were somwhat contracted. About midnight the respirations again became very shallow. Morphine was given and it was found necessary to use the battery for some time. Forty-eight hours after the ingestion of the atropine she was able to resume her duties.

Dr. F. TALIAFERRO reported a case of Œdema of the Glottis, as follows:

Mat. Daley, aged 22, of 353 South May street, Chicago, was taken with a chill, at 2 p. m., March 17, 1888, while on duty at the Grand Trunk depot, but did not leave for home till 5 p. m. Did not eat any supper. His mother gave him a hot drink and a hot mustard foot-bath and he went to bed. About 12 p. m. he vomited some greenish material. About 8 a. m. commenced to have some difficulty in breathing, and half an hour later he complained of some pain on the right side of his larynx in addition to the dyspnœa. Leeches were ordered to front of larynx about 9.15 a. m. At 10.30 a. m. a laryngeal examination not being satisfactory, the index finger revealed a stiff and swollen epiglottis. Dr. Taliaferro went to his office to prepare for tracheotomy, which he felt quite sure would be necessary. When he again reached the house he found the patient in the next room stretched out on a lounge, with his eyes staring, pupils dilated, countenance livid, and totally unconscious, looking as if each gasp would be his last. As there was no time to delay he cut as quickly as he could down upon the trachea, not considering the black and red blood which welled up successively through the incision, fixed the trachea with his left hand and cut into it and enlarged the opening and succeeded in getting the tube in without difficulty. Soon his pupils began to contract, gradually his eyelids began to close, and shortly afterwards he moved his head. Of course a good deal of blood flowed into the windpipe, which he coughed out, and this continued all the afternoon and evening.

Quite a high reaction followed his return to consciousness, his fever going up to 103°, and his pulse to 120. He gradually continued to get better until Wednesday afternoon when the tube was removed. The flesh wound healed rapidly, and in two days after removal he was not breathing through the wound at all.

Dr. J. L. GRAY desired to ask the members of the society whether it has been their experience that unusually large doses of bromides and chloral can be given in delirium tremens? At the Detention Hospital there are many cases of delirium tremens, and they take two or three times as large doses of bromide and chloral as other patients would take, apparently without any bad effect either as to the circulation or to the heart.

The PRESIDENT: With regard to the treatment of delirium tremens I wish to say that for ten or twelve years I have treated it, from the start, with chloral, the idea being to put a man to sleep as quickly

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as possible. I have no hesitancy in giving thirty grains every hour until the patient goes to sleep. I watch the heart very closely until he does go to sleep. I received the idea from a physician in the hospital of Edinburgh. He said that until they commenced the chloral treatment of delirium tremens they had from three to ten beds occupied with these men, but now it was their custom to get the men out in forty-eight hours, and back to work. They commenced at once with large doses, giving whatever was necessary in the way of cathartics.

Dr. H. H. FROTHINGHAM reported a case of administration of chloral in delirium tremens, which was given between eight in the evening and six in the morning, half an ounce of chloral and an ounce of bromide of potassium. Two days afterward he was admitted to the County Hospital, and while the nurse was preparing some medicine for him, he suddenly fell over on the bed and began snoring, and expired without having had any medicine whatever. On post-mortem examination it was learned that he had small hæmorrhages at the base of the brain, due, probably, to his chronic alcoholism.

Dr. L. L. MCARTHUR desired to put a case on record. A patient was brought into the hospital suffering with sciatica, which he had endured for five or six years, in spite of every variety of treatment known to medical science, except stretching the nerve. He consented to have the nerve stretched. Proper preparations for the operation were made the night before, putting the patient in the best possible condition. At the operation the buttocks were shaved and scrubbed with a carbolized solution. A clean-cut incision was made over the course of the nerve, beginning at the margin of the gluteus maximus; the nerve was readily found, exposed, and stretched, and the wound was sealed with the strictest antiseptic precautions. It was so simple and clean cut a wound, and such careful precautions were taken to get primary union, that little or no doubt was anticipated as to the early and favorable healing of the wound. In fact, the patient was promised that he would do as several other cases in the hospital had done before, probably have the wound healed up in four days, and at the end of a week be able to sit up. He was operated on at ten in the morning and by six in the evening had a temperature of 101, which rose during the night to 102½ and in the morning was 103; the next day it remained between 103 and 102½, being kept from rising higher by the influence of antipyrin. Evident sepsis being present, the wound was opened to its full extent. It had united partially by primary union; no pus was found in the wound, but the margin of the muscle had a gangrenous appearance. No drainage-tube had been introduced into the wound, but what little drainage was necessary was provided for at the lower angle of the wound by two or three strands of Seabury & Johnson's catgut. After being opened the wound was washed out with 2½ per cent. solution of carbolic acid, and packed with iodoform gauze, which, moreover, had been rubbed in iodoform; still his temperature did not drop, and in another twenty-four hours the patient died from heart-failure.

Few cases of nerve-stretching have resulted fatally. The operation is usually considered a simple one, not at all dangerous, and it is important that the unsuccessful ones be reported so they can serve as a guide.

He took the catgut, which we thought could be the only source of infection, that had been used for drainage and attempted to make cultures. He tried peptone broth, gelatine, and agar-agar mediums, but in none of them was any growth obtained, showing that it was aseptic, at least that part which remained in the body.

There is much of an outcry now against catgut, and it is being done away with largely; Volckmann will not use it.

REGULAR MEETING, May 21, 1888.

Dr. B. M. Behrens read a paper en-

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titled "Cutting on the Drumhead," which was interesting and suggestive in its matter. It was a plea for instrumental interference in the cases of middle-ear disease which do not yield to what the writer calls uninstrumental methods—inflation or catheterization included. He describes his own method as follows:

"Instead of giving the indications for a probing I shall explain to my professional brethren how I proceed after having treated a case with the common non-instrumental remedies without any benefit. After a thorough cleaning of the meatus I apply a 4 per cent. solution of cocaine, and then make a longitudinal cut with the lancet in the upper part of the drumhead, back of the malleus and beneath the ligamentum posterius, so that I can easily reach the hearing bones. With the probe I examine the mobility of the stapes, or if I am not satisfied with probing, I apply the hook. Usually this will give me an idea about it. If there are striated lines in the drumhead, that seems to indicate adhesion in the middle ear. I replace the hook with a common straight convex ear-knife and divide them. We find striated lines in the drumhead in different conditions of the ear, from the best hearing to complete deafness, without knowing their importance in every individual case, if we don't, divide them where we are in doubt. Has no benefit been derived from this proceeding, we can stop, or we can go further. In the first place I simply apply some iodoformed cotton-batting, and the cut heals up again in a couple of days without the least damage being done. In the second place I apply more cocaine, and with a little sulphuric acid on the probe I cauterize it. After a few days I then have got an opening large enough to allow me to inject the internal wall of the middle ear to make mobilization trials, and, in case I find it necessary, to cut the tensor tympanic or stapes muscle—in short, to increase my diagnostic and therapeutic apparatus to an extent that can only benefit the otologist and never harm the patient; that is, at any rate, my experience. As to the question, how long the mobilization trials are going to be made, I have found it of most benefit to employ very little force, and for only a couple of seconds. By applying iodoformed cotton-batting from day to day, this proceeding can be repeated often, and if the cut tends to closing a new application of sulphuric acid can be made to prevent it. For how many days it is to be continued, it is not easy to tell. I usually do it four to eight days, according to the severity of the symptoms on account of irritation, tenderness, and the opening of the drumhead; any control as to improvement of hearing or abatement of noises is not easy to make, so I simply apply the iodoformed cotton, and let the wound heal up again. First, eight to fourteen days after I can make any examination as to the benefit derived from my proceeding. The result will indicate whether the process is to be repeated or not."

After a discussion of the history of the procedure, and a description of the various ways in which it has been employed, the author continues: "At last an appeal to my colleagues. I don't expect that any otologist shall jump at this proceeding of mine and take it for granted that this is the way, that after Urbautschitsch may lead to a mighty elevation of the otiatric, but shall only ask them to give it an honest trial in all cases of affection of the middle ear that are not benefited by our usual non-instrumental remedies. As any new idea, it has to be worked up, and the satisfaction it has given me in the last year entitles me to lay it before the medical profession and claim for it the right of being given a trial, the more as it has never done any harm. If we can but save a few of our fellow-beings from utter deafness by a method different from the usual way of treating with Politzer or catheter, where these are insufficient, we shall have more regard for this branch of the medical science and feel proud of having achieved a little more than what every non-expert may happen to achieve.

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As the treatment of catarrh of the middle ear stands to-day, the pessimism is explicable, and no wonder that the soft methods have so many adherents as they have. Of those cases that I have treated with my proceeding, some few are selected that, given in detail, will, it is to be hoped, encourage my professional brethren to adopt it. Of course it will often fail to be of any benefit, but I have also pretended only, that it has given me more satisfaction than any other proceeding."

The author reported four cases in explanation, and closed with the following remark: "My sincere hope is that these cases, especially the last one, will do away with the pessimism to some extent, and deprive the 'soft methods' of some of its adherents."

The discussion of the paper developed nothing not fully covered by the paper itself.

EXHIBITION OF SPECIMENS.

Dr. T. B. Swartz exhibited a uterus, removed per vaginam for carcinoma of the cervix, and a dermoid cyst of the left ovary. The first case was one of interest, for several reasons. The diagnosis was confirmed by competent microscopical examination. The recovery at that time, four weeks subsequent to the operation, seemed complete. The patient was thirty-eight years old, had borne three children. She entered St. Luke's Hospital on May 3, and on May 5 Professor Dudley performed vaginal hysterectomy. The uterus was pulled down by means of forceps, the posterior cul-de-sac was entered, the entire uterus girdled, and the right broad ligament secured by hæmostatic pressure forceps and severed. The uterus then was turned out of the vagina and the left broad ligament served the same way. The operation was completed in twelve minutes. The hæmorrhage was controlled by hæmostatic forceps. The peritoneum was brought together by means of small pressure forceps; no sutures and no ligatures were used. Some forceps were removed in twenty-four hours, others in forty-eight hours, and those clamping the broad ligaments were removed in seventy-two hours.

The dermoid cyst of the left ovary was also removed by Professor Dudley at St. Luke's Hospital. The history of the case presented no points of special interest.

Dr. Henry T. Byford exhibited the ovaries which he had removed that morning from a virgin, in a case of a dysmenorrhœa which had resisted all other means of cure. He referred to a similar case in which he removed the ovaries one year ago, in which the operation was followed by complete recovery from the dysmenorrhœa.

REGULAR MEETING, June 4, 1888.

Dr. Albert B. Strong presented a paper in which he reported "Six cases of Old Dislocation of the Head of the Humerus."

In the first case the violence of the attempts at reduction caused a laceration of the integument in the axilla, from which there was a copious but easily controlled hæmorrhage. The patient died from sepsis thirty-six hours after the operation, and the autopsy revealed a partial rupture of both axillary artery and vein.

The second and third cases presented nothing of special interest. The fourth case was that of a woman thirty-five years old, and the dislocation occurred six weeks prior to the operation. Just as the surgeons had concluded to abandon the case as irreducible, reduction occurred as the arm was despairingly lowered to the side. Recovery.

The remaining cases presented no points of special interest.

In the course of the discussion of the paper, Dr. Clark Gapen reviewed the medico-legal aspect of such cases, and strongly indorsed Dr. Strong's emphasis of the importance of taking notes of such cases at the time of their occurrence. The law requires, first, ordinary skill; second, ordinary care and diligence; third, best judg-

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ment. Ordinary skill has been defined as that degree of knowledge and skill attained by the profession up to a reasonable time of the occurrence in question.

ABNORMAL FŒTUS.

Dr. J. H. Stowell presented a specimen of a child born at full term. The mother is a woman of 35 years of age, and the father 40; they have both been married previously; the father by his first marriage had seven children, all healthy and well-formed; the mother by her first marriage had five children, healthy and well-formed. "This child which I present to-night is the first fruit of the second marriage. The child is a male, born at full term, and has no lower limbs whatever; one arm is off at the elbow and has a thumb attached to side of the humerus; the other arm is full length, but with only three fingers, two of these joined together. The child was born alive but lived only a few hours. The parents were colored." They cannot account for this in any way. Nothing of special interest was elicited by the discussion.

The President reported two cases of vaginal hysterectomy. In the course of the report he said: "The first case is one of great interest. The patient was placed in the extreme lithotomy position, a vaginal retractor put in over the perineum and drawn down; large lock vulcellum forceps were placed on the cervix and the latter was drawn down as far as possible. Dividing the vagina from the cervix was an easy matter with the scissors, and then separating the tissues all around from the cervix with the finger nail was easily accomplished. Large snap-forceps were placed on the left broad ligament. I found I had not sufficiently freed the uterus from the rectum, and cut a little with the scissors, and did a thing I will never do again. I reduced the size of the right broad ligament sufficiently to be grasped with another forceps. The uterus was removed in eleven minutes, but I spent three quarters of an hour trying to arrest hæmorrhage. It seemed as though every shred of divided tissue was bleeding. After my first case of hysterectomy I had constructed a very large retractor, whose blade is five and a half inches long by two and a quarter inches wide, with a suitable handle placed at right angles. The retractor was introduced into the vagina, flat surface downwards, and the rectum's anterior wall was perfectly exposed, and the bleeding artery was quickly exposed and seized. I had cut it off in freeing the rectal attachment to the uterus with the scissors. Forceps were placed upon this vessel, which completed the arrest of the hæmorrhage. In addition to the two large lock forceps I had thirteen others in the wound, which were taken off in 24 hours. The larger ones were taken off in 48 hours. The patient had no bad symptoms, and left the hospital in three weeks and two days.

The second case was a woman 42 years of age, and had borne several children. The removal of the uterus was determined upon, because of a rapidly growing carcinoma. This organ was small in size, and when exposed and drawn down with the vulcellum forceps it was brought easily to the mouth of the vagina. The vaginal wall was separated and the uterus brought down and removed in eight minutes. Four forceps only were left in this case, the hæmorrhage being easily checked. The patient was taken out of the operating room, completely dressed and ready for bed in 32 minutes after the commencement of the operation. She has gotten along without a bad symptom. The forceps were taken off in 48 hours. There was no rise of temperature except in the afternoon, when the temperature would go up to about 100, and go back again in the morning, showing that that there was no blood-poisoning going on. There was one peculiarity in this case. The operation was done at 10.30 o'clock Sunday morning; orders were left to catheterize the patient every six hours. She was catheterized shortly after the opera-

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tion, but no urine was drawn, and again at six o'clock, without result. Just before completing these operations it is my custom to inject a solution of milk and water into the bladder, for the purpose of detecting any rupture of the bladder, and it revealed that the bladder was not ruptured; I knew, also, that I had not included the ureters in the forceps, because I kept too far away from them. Therefore, I felt that it must be suppression of urine, the trouble being in the kidneys. I saw the patient that night between nine and ten o'clock, and the nurse said the only thing she complained of was pain in the back, referred to the renal region. Poultices were ordered, and the next morning at six she was catheterized and a drachm and a half of urine only was obtained. A hypodermic injection of a half grain of pilocarpine was then administered, and I catheterized her four and a half hours later and drew off fourteen ounces of urine. With the exception of that one apparent bad symptom, the patient has had an uninterrupted recovery.

Professor J. A. Robison reported the following cases:

ANNUALLY RECURRING URTICURIA OF SEVERAL MONTHS' DURATION.

Miss G., æt. 29, has always been in good health until June, 1886. Menses appeared at 16 years of age, always been regular. Bowels generally regular, appetite small but variable. Has always been well nourished.

In June, 1886, an eruption resembling urticuria appeared on the arms, limbs, and body. It commenced with intense burning and itching, worse at night, intensified by heat, and causing loss of sleep. As a rule, the eruption would appear in the afternoon and disappear about 4 a. m. The result of this was the patient only slept from 4 a. m. till 9 a. m. each day. The eruption recurred daily from June, 1886, until February, 1887, when it disappeared after a two weeks' course of treatment. She was free from all trouble until May 15, 1887, when it reappeared and lasted until December 10.

May 13, 1788, she again visited him with the eruption out in full battle array. It appeared the night before at 7 p. m. and disappeared at 5 a. m.

BROMIDE ERUPTION OCCURRING IN AN INFANT.

This was a clearly defined case, but possessed no special interest beyond the fact of its existence and the unquestionable character of the diagnosis.

CHICAGO PATHOLOGICAL SOCIETY.

Reported by W. WHITFORD, M. D.

Stated meeting, August 13; President I. N. Danforth, M. D., in the Chair.

The session opened with the report by Professor G. F. Lydston, of a case of "Diffuse Syphiloma of the Tongue (with exhibition of the patient), and Excision by Galvano-cautery."

The patient, a man of 29 years of age, contracted syphilis at the age of 18; a hard chancre, which inflamed and caused paraphimosis, which lasted about a month and left the mucous membrane of the penis in an irritable condition, with frequent appearance of fissures and ulcerations. Secondary symptoms appeared about four months after the primary sore, and a pronounced papulo-pustular eruption appeared and resulted in considerable scarring of the skin. After the secondary period became manifest the physician in charge of the patient put him upon mercury for about three months, when the patient went to the Hot Springs of Arkansas. He remained at the Springs three months. He used a large amount of mercury by inunction, and was badly salivated twice. He then returned home and remained two months, after which he again went to the Springs and remained for eleven weeks, during which time he took mercury internally quite freely. He again went

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home and was apparently well for three months, when mucous patches and eruptions broke out, and sores appeared upon the penis. About five years after contracting syphilis the patient was under the care of a physician who also prescribed free mercurial inunction, and that treatment was continued for about six months. He improved for a time and then quit treatment, but again got worse and went back to the same physician, and for at least eighteen months again took mercury in considerable quantity. He then went to Mount Clemens, Michigan, and remained about fifteen months.

He consulted Professor Lydston in 1884 for the first time. He had then unequivocal cerebral syphilis, and tuberculous squamous syphilides in considerable number were scattered about the forehead, forearms, and thighs, with a few scattered squamæ upon the trunk. Scars of former pustular syphilides were visible upon the forehead, forearms, and legs; the tibæ and sternum were excessively tender, and considerable pain was experienced at night. Cephalalgia was a constant symptom and gave the patient intense suffering. Gummy ulceration, with several fissures, existed upon the penis just back of the corona. The tongue was rough, and coated with thick, dirty, yellowish gray fur, with marked dryness in the centre and posterior part of the organ. Several tubercular nodules were also observable, one in the centre of the tongue and the others near its base, those upon the right side being especially marked.

The treatment at this time was cod-liver oil and iron, these being ordered on account of the patient's marked debility. The mixed treatment and the iodide of potassium in saturated solution were given, the iodide being run rapidly up to a dose of 300 grains per diem, and maintained at that point for three weeks, the disease being very resisting to treatment until the end of that time. Local applications of the acid nitrate of mercury were made to the tongue from time to time, and with apparent benefit. As soon as the symptoms indicated that the disease was yielding to treatment the amount of iodide of potassium was diminished to about sixty grains a day, the tonics being meanwhile continued.

The case was pronounced cancerous by the attending physician and several others who saw it in consultation.

Upon examination, the tongue was found filling the mouth and pressing upon the teeth in such manner that it had become eroded and ulcerated. Salivation was profuse; a deep ulcer existed at the centre and back part of the organ; the enlargement seemed to be rather more marked upon the right side. The submaxillary glands were slightly enlarged. There were no other lesions present upon any part of the body. As he experienced great difficulty in masticating and swallowing, he was subsisting entirely upon fluid food, and never having been very robust he had become greatly emaciated.

The treatment instituted was chiefly tonic, in conjunction with an alterative mixture containing iodide of sodium and the chloride of gold; milk punches were allowed, and he was instructed to take as much sweet cream and milk as he could without creating digestive disturbance. Local applications were made of a compound of carbolic acid, iodine, and menthol in mild strength. There was apparent improvement at first, but the tongue began to enlarge and the case presented a more serious aspect.

Mild inunctions of mercury were tried, but they seemed to aggravate the case.

Punctate cauterization with the galvanocautery was tried with some reduction in the size of the tongue. Soon thereafter sloughing began and destroyed the greater portion of the right side of the organ, the remainder of it being undermined and eroded, and the floor of the mouth extensively invaded by the central ulceration, of which mention has already been made. He grew worse, regardless of whatever treatment was resorted to, and as there was no

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prospect of saving any of the tongue, and with a view of getting the foul mass out of the way, excision of the organ, with the galvano-cautery wire, was performed.

If it should be questioned whether or not he was justified in excising the tongue if he believed it to be syphilitic, he stated that the remnant of the anterior half of the organ was attached by so narrow a pedicle from before backwards that, if healing had been possible, the tongue would have been practically useless. The base of the tongue was a mass of hyperplastic ulcerating tissue, and the degenerative process was apt to extend to the pharynx and larynx.

Dr. E. P. Murdock reported "A Case of Superfœtation," and stated that in the winter of 1887, he was consulted by Mrs. C——, aged 26 years, suffering with chronic endometritis, and with a history of a miscarriage some three months before she consulted him. She gradually improved under treatment until the spring of 1886, when he was called to see her for persistent vomiting due to pregnancy. She had a great dread of a miscarriage, and used every effort to avoid it; but in the month of July, 1886, the third month of gestation, the fœtus was suddenly expelled one night after a few severe pains. She made a good recovery, and again returned for treatment with a view of getting entire relief from her old trouble.

In February, 1887, she again presented symptoms of pregnancy, and about the first of March she called Dr. Rittenhouse to relieve her from pain and flooding, which he did very effectually, and assured her that the fœtus had not been expelled. About four weeks later Dr. Rittenhouse again saw her suffering with the same symptoms, and assured her that she was still pregnant, and that no miscarriage had occurred. Dr. Murdock saw her in May and was informed of the treatment she had had, but he could not agree in the prognosis that had previously been made in her case.

He found the uterus considerably enlarged and tender, but not soft and elastic, and not so large as it should be in the fourth month of pregnancy. He advised local treatment, but his advice was not followed, and he did not see her again until September. She was then expecting her confinement in December, and had all the symptoms of a fairly progressing pregnancy. He then gave it as his opinion that she had had a miscarriage in March or April, and that a succeeding pregnancy was in progress, and told her that her confinement would not occur before April 1.

Months passed on and labor did not occur, but it was difficult to understand how a miscarriage at the third month could take place and no fœtus or placenta be found. The month of April passed and still labor had not occurred. During these months Dr. Murdock saw her frequently, on account of severe pain in the uterus, diarrhœa, and occasional attacks of fever. May 2, 1888, thirteen months after the beginning of pregnancy, he was called to attend her in labor, which progressed and terminated normally until delivery of the placenta, which presented such abnormal characteristics that he examined it carefully and found imbedded in its margin a fœtus of about three months' development, and to it attached a placenta completely flattened and mummified, which explained the matter, and induced him to present the specimen with a report of the case to the society.

The history seems so clear, and the entire account of the symptoms and conditions so clearly remembered and stated by the patient as to leave little doubt of a condition which, he said, for want of another term he called *superfœtation*, although it is not such a condition as has been heretofore reported under that name, if such a condition as superfœtation ever exists.

The literature on the subject is quite limited, with the writers divided in opinion on the subject as to whether such a condition exists or not, those who deny the existence of superfœtation basing their ar-

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guments upon scientific reasons based upon the changed condition of the organs, to-wit:

1. The changed physiological action of the organs.

2. The firm mucous plug which closes the mouth of the uterus.

3. The changed condition of the decidua preventing communication with the tubes—that is, the general suspension of the functions of conception which exists during the period of gestation, and often extending entirely through the period of lactation.

In the case reported the objections do not exist. First, gestation had undoubtedly ceased, though the fœtus remained in utero. The mucous plug had evidently been displaced by the occasional hæmorrhage, and in fact there are strong reasons to believe that all the processes of ovulation and menstruation had returned after the death of the fœtus.

Dr. Goodell, of Philadelphia, reports a case in which a dead fœtus remained in utero fifteen years, during which time menstruation was regular and profuse, and he finally removed the fœtus, or rather the fragments of bones, from the uterus, and his patient died of sepsis after the operation. This appears to have been a fœtus of seven or eight months' development, while in the case now reported it could not have been more than ten weeks.

Those who hold to the possibility of superfœtation depend entirely upon reported cases for proof. In many of these cases there might have been a double uterus, and the functions of each acting separately, as is undoubtedly the case in some of the lower animals, the rabbit, French coney, etc. Indeed, Prof. Fordyce Barker reports such a case in 1885 coming under his own observation. In this case one child was born nine months after marriage, and seventy-four days later another child was born; both lived and prospered. Eismann, Burdack, Des Granges, Fornier, Velpeau, E. A. Purdy, of New York, Dr. Amos Sawyer, of Hillsboro, Illinois, and a few others have reported cases of duplex gestation with a variance from 70 to 168 days in delivery. In one of these cases Blumenbach accounts for the phenomena on the theory of a double uterus, but a post-mortem upon the woman four years after the birth of the children, when death came from some other cause, the pelvic organs were found normal. With these facts before us we are almost compelled to admit the possibility of superfœtation in rare instances. But it is important to make a distinction between superfœtation and superfecundation—that is, superfœtation being the conception and gestation taking place in a uterus where a fœtus already exists, perhaps two or three, or even four or five months, while superfecundation is the impregnation of two ova within a few days and before any physiological changes could take place in the female organs of generation. Thus, the case reported by Howard, where a woman gave birth to a white child and a black one at the same confinement, could not be called superfœtation, but superfecundation; so with the case of Mr. Adam Vettle, of Nokomis, Illinois, who bred a mare to a stallion, and five days later to an ass, and she brought forth a horse colt and a mule.

Many cases of superfecundation have been reported, and there can be offered no physiological argument against them; but it is quite different in superfœtation. So far as he knew, the case which he had reported stands alone, as he was not aware of any other case of the kind on record. He regarded it as a case of considerable interest, though by no means so wonderful as the cases of two living children being born from the same uterus at an interval of 168 days.

Dr. L. L. Gregory read a paper on "Primary Cancer of the Kidney," reporting a case, and exhibited the diseased organ. After reviewing the literature on primary cancer of the kidney in a general way, he said: I shall now give the history of a case coming under my own ob-

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servation a few weeks since in St. Luke's Hospital, and shall present to the society for inspection the tumor removed, a portion of the vena cava distended to six times its normal size, with an organized blood clot, the heart, and also the kidney of the opposite side.

The patient was of Swedish parentage, 27 years of age, unmarried, and a seamstress by occupation. The family history as regards disease is very good. The brothers and sisters are all healthy. The patient's health previous to this illness was uniformly good. Her entrance into womanhood was not marked by any trouble, and her menses have been regular and normal. She entered the hospital the 11th of April last, weak, emaciated, and of a sallow complexion. Last November she first noticed a small lump in her abdomen a little above and to the right of the umbilicus. At first there was no pain, but about Christmas she began to suffer pain at intervals in the region of the right kidney. The tumor, on examination when she entered the hospital, was oblong and nodular in shape and about 3¼ inches in its shortest diameter. One month from this time the tumor, which had steadily increased in size, was removed. It extended from a line 2½ inches to the left of the umbilicus to the right side of the abdominal wall, and from the ninth rib above to the line a little below the upper border of the pelvis. Posteriorly it occupied the whole of the lumbar region on the right side. On percussion it was dull, diminishing in flatness from the right to the left side. The tumor was slightly movable from the right to the left side. The margin between the growth and the liver was with difficulty made out, owing to the adhesions between them.

The week previous to the operation the urine was examined with the following result: Sp. gr. 1.018; alkaline in reaction; no albumen; no sugar; no blood. A few triple phosphatic crystals; mucus in large amount; squamous and round epithelial cells, and a few pus-cells.

The tumor was also aspirated and about two ounces of fluid drawn off, which was found to contain albumen, 25 per centum by volume; blood globules, large cylindrical casts composed of round nucleated cells; occasional large, round and polygonal cells, nucleated, isolated and in patches; broken-down connective-tissue shreds, and much granular matter; also groups or nests of large nucleated granular cells.

The patient gave a history of chronic constipation, but an attack of diarrhœa delayed the operation for more than two weeks. The liver, spleen, heart, and lungs were normal. The right kidney was somewhat hypertrophied. The stomach was pushed to the left side, and she was unable to take but little food at a time without distressing her. The last ten days before the operation she suffered constant pain in the tumor and darting pains in the lower extremities.

ALUMNÆ ASSOCIATION OF THE WOMAN'S MEDICAL COLLEGE OF THE NEW YORK INFIRMARY.

Meeting was held May 29, the President, Dr. Mary T. Bissell, in the Chair.

Dr. Gertrude B. Kelly presented the history of a case of "Acute Articular Rheumatism Complicating the Puerperal State."

The patient was a multipara; the case one of breech presentation. The membranes had been prematurely ruptured at 11 a. m. Dilatation had been completed, and the breech born at 8.45 p. m. Contractions had then ceased, and the head had been delivered by expression. The child was born alive, but did not cry for an hour, and died at the end of twenty-seven hours.

The uterus contracted well, but one hour after labor the pulse was 100, the patient felt chilly, and her face was flushed. On the morning of the second day the temperature was 100.8° Fahr. and the pulse 100. She complained of pain in the right

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hypochondrium, and epigastric distress. In the evening, the temperature was 102.8° Fahr. and the pulse 104. The face was then of a bluish tint, almost apoplectiform in appearance. The pain and feeling of weight in the epigastrium continued, and a dose of calomel was given. There was no pelvic tenderness, and the flow was normal. On the morning of the third day the temperature was 100.8° Fahr. The tongue was dry and brown, and there was a markedly yellow tinge to the skin, but the patient felt better. On the morning of the fourth day the temperature was 101.4° Fahr., and the pulse eighty-eight. In the evening the temperature was 103° Fahr. and the pulse eighty-eight. Still there was no tenderness about the uterus, and the flow was normal. She now commenced to complain of pain in the pubic symphisis, and in the right elbow. On the morning of the fifth day the temperature was 101.4° Fahr., and there was swelling of the right wrist. The patient was ordered sodæ salicylate, grs. x, q. 2h., but only two doses were taken, because the patient thought that "it stopped the flow." In the evening, the temperature was 99.8° Fahr., perspiration was profuse, and there was not so much pain, but the patient was restless. Following the administration of one drachm of the tincture of hyoscyamus the patient was delirious. She had previously taken this dose with good effect. On the morning of the sixth day the patient was rational and was taking nourishment well. The temperature was 101.4° Fahr. There was now swelling of the left elbow and wrist, but the pain was less. After a fairly comfortable day the patient had, at 3.45, commenced to talk incoherently, and shortly after had died. Embolus was considered to have been the cause of death. No signs of heart implication had been previously discovered. An autopsy was not allowed.

Dr. ELIZABETH CUSHIER favored rather the diagnosis of obscure blood-poisoning in this case. She had seen cases terminate fatally without local pelvic symptoms, and in which on autopsy no pelvic lesions were discovered, with the exception of small collections of pus in the lymph reservoirs situated on the sides of the uterus beneath the broad ligaments. In one case which she had seen, there had been scarcely a trace of peritonitis, and the only changes besides lymphangitis referred to were softening of the liver and spleen, and the dark and semi-coagulable condition of the blood. There was absence of local pelvic symptoms, also, in some cases where the patient after having done apparently well for a few days would have a violent chill and high fever, lasting with more or less marked remissions for a number of days, then passing off and the patient making a rapid and complete recovery. In two such cases seen by the speaker, there was complete absence of local symptoms, and the diagnosis of sepsis could only be made by rigid exclusion. In one such case, the temperature had risen to 107° Fahr. and there was furious delirium. This temperature had been controlled by cold applications and there had been no further elevation.

The joint affection in the case presented by Dr. Kelly, if taken in connection with the delirium, would point to septic rather than rheumatic arthritis, as the cerebral symptoms of acute rheumatism are usually attended or preceded by excessive fever, while in septic poisoning, on the contrary, hyperpyrexia does not necessarily accompany such disturbances.

Dr. EMMA WARD EDWARDS thought that the implication of the joints was too early to be referred to puerperal infection. The joints had been affected upon the fourth day, while the fever had been immediate.

Dr. CUSHIER replied that the poison might have gained access before the child's birth, and in that way have gained time for its work.

Dr. SARAH E. POST suggested that pyosalpinx would furnish such a focus of infective material. Obstetricians were looking toward these tubal collections for the

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origin of obscure cases of puerperal disease. In this case the head had been delivered by expression. If a tubal collection had existed it might at the same time have been erupted, and passing over the placental surface of the uterus before contraction have been taken directly into the blood. Immediate chill and rise of temperature, under such circumstances, would be thus easily explained. Puerperal infection usually proceeded by the lymphatics. Where the blood current was the channel for its introduction, an altered type of development and speedier systemic involvement would be inferred.

Dr. VIRGINIA DAVIS, resident physician at the New York Infant Asylum, referred to three cases of joint affection occurring during the puerperal period. In one case the attack had occurred three weeks after delivery, in another two and a half weeks, and in the other, four. The history had been irregular, and the attacks had not been promptly limited by anti-rheumatic treatment, yet the patients had been up and about previous to the attack; there had been no pain nor temperature nor any local pelvic symptoms. A diagnosis of septic infection had been made in all of these cases, but the question of rheumatism was, she thought, pertinent. In one of the cases, a previous history of rheumatism was obtained.

Dr. KELLY closed the discussion. She still held the opinion that the rise of temperature and the joint-affection occurred too early for puerperal pyæmia. In all of the cases which had been referred to, a longer interval had elapsed between the delivery and the development of these symptoms.

Dr. EMMA WARD EDWARDS followed with a paper upon "The Frequency of Backward Displacements of the Uterus after Parturition."

In her earlier practice, she had encouraged patients wearing pessaries for backward displacements to hope that after pregnancy they would be cured. She had, however, been disappointed, having found that in all cases the old malposition was renewed. In this statement she included both flexions and versions. In the reader's experience, all backward displacements of the uterus tended to return after delivery. The curability of the condition was, however, increased. If supported by tampons or a pessary during the first two or three months after delivery, a permanent cure would usually result. The theory of cure lay in a shortening of the ligaments by the processes of involution. Backward displacements in the virgin and in the sterile married woman were, on the other hand, practically incurable by pessaries. The future of Alexander's operation was therefore eagerly watched. It could not be denied that shortening of the round ligaments was the most important indication to be met in the treatment of these cases.

Dr. GRACE PECKHAM referred to a case in which birth at term had been preceded by five miscarriages, due probably to the malposition of the uterus. In this case the malposition had returned after delivery. The special cause for the displacement would, in any case, probably determine its recurrence.

Dr. POST referred to two cases in which posterior displacement had seemed to prevent conception, and pregnancy had occurred while wearing a pessary. In both of these cases the displacement had returned.

Dr. CUSHIER was sorry to say that she had had a large experience similar to that of which Dr. Edwards had complained. She knew of no case in which backward displacement, existing previous to pregnancy, had not returned. In regard to early treatment, she thought that while careful attention should be paid to the replacing of the uterus as soon after parturition as it was discovered, equal care should be taken that the involution of the vagina was not interfered with by large pessaries. The frequent lifting of the uterus, the Simm's position, or a well-adjusted Cutter's

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pessary would, she thought, prove most efficient. Later, the intravaginal pessary could be resorted to.

The speaker did not think that backward displacements of the uterus were a frequent cause for sterility, for while she had corrected the displacement in many cases in which it had given rise to repeated abortions, she had yet to see a case of simple retroversion with sterility which was overcome by the replacement of the uterus.

In regard to shortening the round ligaments, her experience had been too limited to be of value. She had operated six times. In three cases the result had been satisfactory; in one, a subsequent operation upon the vagina was resorted to, as the shortening of the ligaments did not prevent the sinking of the uterus; in another the patient was obliged to continue the wearing of her pessary. In one case the operation was done subsequent to a Battey's operation. The round ligaments were found in this case so attenuated as not to bear traction, and relief was given by drawing the cervix backward and attaching its posterior lip to the posterior vaginal wall.

Even where pessaries were worn with comfort, Alexander's operation would be wecolmed as an escape from the doom of wearing them, as was in some cases necessary, for a lifetime.

Dr. SARAH J. MCNUTT made some remarks upon "The Frequency of Nephritis as a Complication of Intestinal Catarrh."

Where stupor or other head-symptoms developed in the course of intestinal catarrh, the urine should be carefully watched. Scanty urine would be often found loaded with albumen and casts.

Dr. GRACE PECKHAM presented a photograph showing the restoration of the parts in a case of the "Tumor of the Clitoris," upon which she had operated one year before.

THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association assembled August 7 in the University Buildings in the city of Glasgow, Scotland.

The first day of the fifty-sixth annual meeting was chiefly devoted to meeting of councils, reading of reports of various committees, etc.

The chair was occupied by the retiring President, Dr. J. T. Banks.

In the evening, Professor W. T. Gairdner, President-elect, delivered the annual address on "The Physician as a Naturalist." He closed his address with one of those authoritative utterances respecting the relations of science and religion which in these days of confusion and spiritual trouble are listened to with much avidity and eager hopefulness. President Gairdner said: "Probably there may be some of you present who have been led to take note of a proverb which I am bound to say I have not been able to trace to its source, but which I suspect to have been the growth of a more mediæval period. '*Ubi tres medici, duo athei.*' Irreverence in a physician, he maintains, disqualifies him for some of his noblest functions. Indifference makes him an anomaly in our social system. It will be in the future his high privilege to play the part of a mediator between destructive and constructive influences of the times. Remembering the pernicious despotism exercised over his own art, he will study the Bible emancipated from fetters of tradition. His relations with suffering and the solemn ministration of life and death will keep him in a region 'in which from day to day the voices of the unseen world (if he will only listen) will be ever sounding close to his ears.' And so in the highest sense a spiritualist, working according to the strict method of the materialist, he may in the evolution of more certain and far-reaching

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art, master the relations between our physcial and moral natures, and whilst healing fleshly ills acquire the skill to treat by medicine the many varieties of moral *disease* as systematically as he now treats physical ills."

Promptly at 10.30 a. m. on Wednesday, the various sections—twelve in number—met, remaining in session daily until 2 p. m. during the week.

Section A—Medicine.

Professor T. McCall Anderson, M. D., presided and delivered the opening address on "The Diagnosis and Treatment of Syphilitic Affections of the Nervous System." After quoting certain views regarding the affection, he said his view of syphilis was that, as "mild" syphilis was apt to be treated in a cavalier fashion and without due care and persistence, disease of the nervous system was apt to follow in its wake; and that such disease was much more common than was generally supposed. He then proceeded to deal with his subject under the following headings: The entrance of the syphilitic poison into the system; the discovery of other manifestations of the disease and traces of by-gone syphilitic manifestations; the feeling of pain and appearance of patient; the age and sex of the patient, as being important; the occupation of the patient; the fact that syphilitic nervous lesions are frequently multiple; the variability of the symptoms; the fundamental types recognized as cerebral in syphilis; eye-symptoms, and the general treatment.

A discussion followed.

Dr. Andrew Smart, of Edinburgh, opened the section of medicine on "Some Undescribed Forms of Respiratory Neurosis." The function of respiration undergoes remarkable changes when the nerves which regulate it become disordered from any cause, or when their normal activity is in any way interfered with. The first case referred to was that of spasm brought on by slight emotional disturbances. The spasm lasted fifty seconds, and in that space the patient breathed 132 times, while during the same interval the heart registered 212 pulsations. This case was only one of a group which Dr. Smart cited to illustrate the effects resulting from vaso-moter spasm of a particular seat of the brain. Referring next to a second class, it was explained that the vagus and phrenic nerves (the two chief nerves of breathing), from their combined control of the entire respiratory movements, were a prolific source of many and sometimes grave disorders, not only of breathing, but of the respiratory muscles, implicating sometimes all the other muscles in general convulsive spasm, and suspension of breathing for a time. This mode of disturbance he described as "Inspiratory Neurosis," inasmuch as when these nerves were so excited respiration was always stopped in the position of full inspiration. The third disorder he referred to was that of nerve expiration. Irritations of this nerve or its centre excited persistent cough, going on until spasm and threatened suffocation was imminent. This condition as a symptom was characteristic of a number of maladies, especially whooping-cough, which he said might be viewed as a disordered state of that nerve. A fourth respiratory neurosis was described under the designation of "Respiratory Dysphagia" connected with the functions of swallowing. It was explained that it had been definitely ascertained that there was a nerve whose function it was to stop breathing during the act of swallowing, and interference with that action caused difficulty of breathing during meals. The troubles were of different kinds, which were fully described according to the nature of the disorder of the nerve. He concluded by referring to "Cerebral" and Cheyne-Stokes breathing, the only two modes of abnormal respiration. He showed by means of respiratory tracings that the former were misconceived and wrongly interpreted as a sign of disease, and that it was generally confused with that of Cheyne-Stokes respiration. The

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latter, he remarked, was characterized by rythmical periodicity, a difference of great significance absent in the other, which is continuous respiration. He considered the occurrence of Cheyne-Stokes breathing of the true periodic type as a sign of the greatest import. He furthermore believes that the stoppage of periodic character of the breathing is brought about by stimulation of a distinct centre of respiratory inhibition.

A large number of papers were read in this section.

SECTION B—SURGERY.

Professor George Buchanan, M. D., presided. In the course of the opening address he stated that he was the first person who ever adopted the practice of surgery to the exclusion of all the other branches of medicine. In this he was joined by Sir Joseph Lister and Sir G. H. B. Macleod; so that the practice of surgery was now adopted by others who had obtained hospital appointments—he thought to the advantage of the profession and the medical school. No one, he said, who had had so long experience as himself could fail to be struck with the rapid strides with which the science and practice of surgery had advanced. His early years were associated with administration of anæsthetics, for he was the first person in Scotland who was made insensible to pain by the administration of ether—an experiment he performed upon himself. In speaking of the tendency of surgery within the last thirty years, he said he thought that period more than any previous one had been characterized by scientific research and had profited by the investigations of pathological histology. It might seem a little late in the day to refer to antiseptic surgery as one of the advances of the present time, but it was not out of place to do so in this University, where the principle was first enunciated, nor at this meeting, where Sir Joseph Lister was to be present. It was while he held the chair of surgery here, from 1860 to 1869, that he made those observations by which the germ-theory of putrefaction was established and which culminated in the antiseptic treatment of wounds. The discovery in the later part of the period which perhaps had caused most interest was that of bacillus of tubercle, not only because it showed the germ-origin of a disease long believed to be constitutional, but because it betokened the probably similar origin of many allied affections, such as syphilis, cancer, etc. Of course a bacillus can only live in a suitable pabulum supplied by a peculiar constitution, so that it was to be considered only as an exciting cause acting in a predisposed part. In pathological histology the researches into local beginnings of cancer had greatly cleared the way for a more precise etiology than formerly; still it must be admitted that that dread disease still baffled the most skillful, both as to its origin and progress. Operations upon the head, chest and abdomen were now daily practiced which twenty years ago would have been deemed unjustifiable. Might he take the liberty of saying that in some of these the limit of prudence had been reached, if not exceeded? Especially in cases of malignant disease, where it could be recognized, the utmost caution was required in determining for or against the operation.

A number of papers of professional interest were read in this section.

One of the most important papers read at the meeting was that of Dr. William MacEwen, of Glasgow, "On Surgery of the Brain and Spinal Cord." As introductory to his lecture he briefly sketched the history of the evolution of cerebral surgery. Lesions of the head had at all times held a prominent place in the annals of surgery. Much had been done by surgeons before the present day to advance the healing art as applied to this particular region, but their efforts were chiefly directed to the superficial parts, and their operations were simple and undertaken for the most part upon the primitive evidence of direct visual and tactile observations. No references were made by them to cerebral surgery as now known. There were two

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formidable barriers to the advance in this region; first, the fact that the majority of intra-cranial operations were attended by inflammatory action, which so often proved fatal as to cause the surgeon to shun active interference; and secondly, the brain was a dark continent in which they could descry neither path nor guide capable of leading them to a particular diseased area, and if they did attempt to reach it, it could only be by groping in the dark. The cerebrum was supposed to perform its functions as a whole in the same way as the liver and kidneys performed theirs, there being no differential of function. In recent years abundant proof had been gathered from human pathology to put beyond serious doubt the broad fact that there are points in the human cortex cerebri intimately related to the motor and sensory functions of certain parts of the body. The apportionment of definite parts and their precise delimitation was still the subject of investigation. For the purposes of the paper, it was enough to recognize that there were certain regions of the brain in intimate relation with the movements and sensations of certain parts of the body, and which in the presence of either irritative or destructive lesions gave rise to phenomena which were of the greatest diagnostic value. This extended physiological knowledge enabled cerebral lesions to be more accurately localized, whilst his experience showed by preserving aseptic the parts operated upon surgical interference with the brain could be robbed of its chief dangers. In tracing the progress of cerebral surgery, he cited a number of interesting cases which had come under his own observation, chiefly of tumor and abscess of the brain. Dealing next with the present aspect of cerebral surgery, he inquired if the localising motor phenomena were reliable guides to diagnosis of cerebral lesions situated in the motor cortex. His answer was an unhesitating affirmative. Each case, however, required to be studied on its own merits; the whole phenomena presented; the unobstrusive as well as the prominent features must be carefully searched for; the degree in which each was present must be accurately measured; and the whole weighed and compared with former experience before drawing a conclusion. From his own experience as well as cases reported by Mr. Godlee, Mr. Horsley, and many others, it was also clear that the motor and sensory phenomena formed reliable guides to the localization of lesions in cerebral convolutions. He adduced a number of instances, one of special interest, showing that the diagnosis of cerebral lesions in non-motor regions might be made from sensory phenomena; and also as an example of the difficulty of finding the exact cue to the lesion, and how easily it might be overlooked. He said a man who had received an injury about a year previously suffered from deep melancholy, strong homicidal impulses, relieved by paroxysms of pain in the head of indefinite seat. Though the pain was excruciating, he welcomed it, as it temporarily dispelled the almost irresistible desire to kill his wife and children and other people. Prior to receiving this injury he was perfectly free from impulses of this kind, and had led a happy life with his family. Behind the angular process of the frontal there was a slight osseous depression, which could not account for his symptoms. There were no motor phenomena, but on minute inquiry it was discovered that immediately after the accident, and for almost two weeks subsequently, he suffered from psychical blindness. Physically he could see, but what he saw conveyed no impression to his mind. These phenomena, however, gave the key to the hidden lesion in his brain. On operation, the angular gyrus was exposed, and it was found that a portion of the internal table of the skull had been detached from the outer, and had exercised pressure on the posterior portion of the supramarginal convolution, while a corner of it had pene-

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trated and lay embedded in the arterior portion of the angular gyrus. The bone was removed from the brain, and re-implanted in the proper position, after which he became greatly relieved in his mental state. Though still excitable, he had made no further allusions to his homicidal tendencies, which previously were obtrusive, and he was now at work. Such cases of complete mind-blindness were rare, and the definite localization in this case would assist in indicating in a man what the arterior portion of the angular gyrus, and the posterior portion of the supramarginal convolution, subserve. In cerebral surgery not only did one require to localize the lesion, to select suitable cases, but also, after exposing the brain and its lesions, to judge when to advance and when to hold the hand. After dealing with such topics as the possibility of the removal of large pieces of the motor area, anchoring of the brain, false hernia cerebri, and re-implantation of bone to fill the hiatus in the skull left by injury or made by operation, he turned to another portion of the nervous system. It was found that certain sensory and motor phenomena, due to lesions in the spinal cord, were amenable to operations, and were attended by a measure of success sufficient to offer a prospect of relief to a distressing class of sufferers hitherto regarded as hopeless. The spinal membranes and the cord itself could be exposed, and neoplasms and encroachments upon the lumen of the canal might be removed therefrom without unduly hazarding life. Such interference was unsparingly condemned by writers on the subject, their remarks, however, being applied to injuries, as no such operation had been hitherto contemplated upon idiopathic cases. They contended that they were full of danger, being difficult, prolonged, and attended with profuse hæmorrhage; secondly, that the operation could hardly benefit the patient; and thirdly, that no one had been able to present a successful case. Each of these points had now lost its validity. He gave instances of successful operations on the spine, and, in in conclusion said, that the same phenomena by which they were now able to recognize certain cerebral lesions, and locate them in precise areas, were exhibited by patients who came under the eye of their surgical predecessors, some of whom must have the album of memory filled with such impressions. Yet they saw not their import. They were so hampered by circulated physiological dogma of the time that their true significance never dawned upon them. The facts were reflected from their brains as images from a mirror, and no more.

STATISTICAL RÉSUMÉ.

Of twenty-one cerebral cases, exclusive of fractures of the skull or other immediate effect of injury, operated upon by Dr. Macewen, there had been three deaths and eighteen recoveries. Of those who died, all were *in extremis* when operated on. Of the eighteen who recovered, sixteen are still alive in good health and most are at work, leaving two who have since died—one eight years after operation of Bright's disease, but having in the interval been quite well and able to work; the other forty-seven days after the operation, after the abscess was perfectly healed, from an acute attack of tubercular enteritis.

SECTION C—OBSTETRIC MEDICINE.

Thomas More Madden presided, and read a valuable address, "The Rise and Progress in Obstetric Medicine." A number of papers were read in this section, among which might be mentioned one "On Intrauterine Death; Its Pathology and Preventive Treatment." An active discussion ensued on all papers read in this section; communications bristling with technicalities were made by nearly all members present.

SECTION D—PUBLIC MEDICINE.

Henry Duncan Littlejohn, M. D., President. He discussed "Sanitary Legisla-

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tion" by reading a somewhat lengthy paper of great importance and interest.

SECTION E—PSYCHOLOGY.

James C. Howden, M. D., presided. In his opening address he first treated of the lesions derived from the few cases of insanity in which surgical interference had resulted in recovery, and then proceeded to discuss the mental and medical treatment of insanity.

SECTION F—ANATOMY AND PHYSIOLOGY.

John Cleland, M. D., presided and delivered an interesting address which was followed by general discussion.

SECTION G—PATHOLOGY.

Sir William Aitken, M. D., presided. He read a valuable paper on "The Progress of Pathology." In closing, he remarked that clinical specificity in disease had been shown to be only partially true. Professor Cruikshank read a paper on "(1) Anthrax in swine; (2) Tuberculosis in swine; (3) Human and Bovine Tuberculosis."

SECTION H—OPHTHALMOLOGY.

Thomas Reid, M. D., presided, and Dr. R. Brudenell Carter opened a special discussion on the "Treatment of Senile Cataract." The following gentlemen took part in the discussion: Messrs. Power, Carter, McHardy, Teale, Lloyd-Owen, Hewetson, Grossman, Bell, Snell, Wolfe, and others. It was concurred in by all members present, that all operations should be done under full antisepsis. Extraction of cataract with iridectomy, or a preliminary iridectomy, was insisted upon by a large number of members, whilst the extraction of cataract without iridectomy appeared to have many advocates. Mr. Powers suggested that if nature designed other than a round pupil for visual purposes she would have made it otherwise; he thought the pupil left by an iridectomy (key-hole shape) was contrary to nature for visual purposes. That the artificial pupil was in his mind no doubt the cause of a large number of astigmatic cases met with after iridectomy. A wide iridectomy should be made, permitting easy escape of the lens and lens débris and less risk of bruising the iris by pressure of lens in its escape through an opening made by incision. Graefe's knife with Graefe's modified linear incision was accepted as the least dangerous operation. The following are some of the papers read in this section: "A Contribution to the Study of Hemianopsia of Central Origin, with Special Reference to Acquired Color Blindness"; "On General Neuroses. Having an Ophthalmic Origin"; "On (1) Sailors and their Eyesight; (2) Unusual Corneal Opacity in Process of Recovery"; "On Color-Blindness"; "On the Value of Cautery in Treatment of Ulcerations of Cornea"; "Three Cases of Conical Cornea treated by Actual Cautery"; "On Cocaine," etc. Mr. R. Brudenal Carter described his operation for "Opening the Sheath of the Optic Nerve for Relief of Pressure," and exhibited a case of instruments specially devised for his operation, which is as follows: Tenotomy of the recti and a hook introduced through the opening so as to embrace the optic nerve. The eyeball is rotated so as to expose the optic nerve; an incision is made in sheath of the nerve, evacuating the fluid; a small probe-pointed bistoury is passed into the opening and the sheath of the optic nerve is slit up along its entire length; the divided rectus muscle is brought in apposition as well as the conjunctival wound by silk sutures. Antiseptic precaution is observed. The eye is then bandaged and the patient is to remain quiet for a week. He says this operation is harmless, and that the relief from pain experienced by relieving tension can not be overestimated.

SECTION I—OTOLOGY.

Thomas Barr, M. D., presiding. The principal discussion in this section was that on "Adenoid Growths in the Naso-pharynx; their Influence on the Middle Ear and

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their Treatment." These growths it was thought best to remove by the finger-nail and also using an artificial finger-nail when required. Hartman's curette and forceps were sometimes required in the removal of these growths. Anæsthetics in removal of growths from naso-pharyngeal or buccal walls of pharynx or in any surgical interference where hæmorrhage was likely to ensue, should not be used, though in some cases, especially in children, it was considered impossible to operate without them. Two cases of death were reported from hæmorrhage into trachea in removing these growths, the patients in both instances being under the influence of chloroform. For relief of pain reliance should be placed upon the free use of a 4 to 10 per centum solution of cocaine.

SECTION J—DISEASES OF CHILDREN.

Walter Butler Cheadle, M. D., presided. He said he did not advocate the establishment of children's diseases as a distinct specialty. This section was amongst the most prominent and was largely attended. Professor A. Jacobi, of New York, started a discussion on diphtheria and was followed by Professor Gairdner, Professor Buchanan, and many others. Professor F. E. Waxham, of Chicago, explained the proper method of intubation of the larynx. Members from many of the sections came specially to hear, and probably for the first time heard a description of the proper intubation of the larnyx, etc.

SECTION K—PHARMACOLOGY AND THERAPEUTICS.

James Morton, M. D., presided. There was discussion on carbolic acid, antipyrin, antifebrin, and their allies, especially as regards their antipyretic, analgesic, and antiseptic actions. Papers were read on Phenacetin, coca, alkaloids, etc.

SECTION L—LARYNGOLOGY AND RHINOLOGY.

Felix Semon, M. D., presided. A discussion on "The Causes, Effects, and Treatment of Nasal Stenosis" was opened by Dr. McIntyre, of Glasgow. Papers were read on "The Pathology of Echondrosis of the Triangular Cartilage with a New Operation"; Removal of Nasal Polypi"; "Hay Fever," etc.

REPORT OF SCIENTIFIC GRANTS COMMITTEE.

The following are reports made to the committee:

Dr. C. E. Beevor and Mr. Victor Horsley have been carrying on investigations of an experimental character in stimulating the cortex and the internal capsule, as well as investigations on the brachial plexus of the monkey. These observations are not furnished for publication, as further work on the subject is required. They have also finished an investigation on some of the functions of certain cranial nerves (v, vii, ix, x, xi, xii), and of the first three cervical nerves in the monkey, which has been read before the Royal Society. The chief points in this paper are that the soft palate does not receive its motor supply from the seventh nerve, but from the accessory nerve of the vagus; the hypoglossal nerve supplies only one-half of the tongue, and it does not supply the depressors of the hyoid bone, through the descending noni branch. The depressors of the hyoid bone are supplied by the first and second cervical nerves, of which the branch from the first cervical to the hypoglossal supplies, especially the sterno-hyoid, and sterno-thyroid, while the omo-hyoid gets its nerve supply especially from the branch from the second cervical nerve to the descendens noni. The nerves were stimulated by the Faradic current in the cranial and spinal cavities, and also in the neck.

Dr. Hadden and Mr. Ballance, by their stimulating experiments, have led to conclusions of a positive and negative kind. They have found that stimulation of the prefrontal region, as well as the temporo-sphenoidal and occipital lobes, has not been followed by movements. They are in-

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clined to think, also, that the ascending parietal convolution and the angular gyrus do not invariably possess the functions ascribed to them. As points of interest attention may be called to the localization of movements of the thumb and great toe. Occasionally they have found bilateral movements of a definite character follow stimulation of certain spots in one hemisphere—broadly put, the movements of the fingers, wrist, elbow, and shoulder as represented in the cortex of the ascending convolution in the order indicated, beginning from below. Certain definite movements have been observed in stimulation of the various parts of the internal capsule.

Dr. Angel Money's object has been to find out whether experimental irritation of the cerebral hemispheres has any power of causing movements in the plain muscular tissue of the stomach and intestines. The voluntary muscles were paralyzed by means of curare, thereby preventing muscular contraction on the application of the electrical currents to the surface of the cerebral hemispheres. The movements of the stomach and intestine were watched through a small window in the peritoneum. Artificial respiration was employed in the usual way. In some experiments the intestines were kept bathed in warm bath of neutral saline solution. The animals used were rabbits, dogs, and cats. In none of tnese animals did experimental electrical irritation of any part of the surface of the cerebral hemisphere cause movements of the stomach or intestines. When the cortex of the brain was removed by slicing, and electrical irritation practiced on the divided white matter, no result followed in the stomach or intestines unless a strong current was used. A movement of the stomach and intestines was invariably excited when the electrodes were applied to the basal region of the brain. This movement could be arrested by electrical irritation of the dorsal region of the spinal cord. It has been asserted by Vulpian that experimental irritation of the surface of the brain in the motor area can cause an epilepsy, so to speak, of the plain muscular tissue of the stomach and intestines. Dr. Money admits the difficulties of the inquiry, and has been unable to confirm this view. He believes that Vulpian's result may be attributed to diffusion of the current into the pneumogastic region.

WM. B. MEANY, M. D.

GLASGOW, AUG. 11, 1888.

EXTRACTS AND ABSTRACTS.

ILLINOIS STATE BOARD OF HEALTH.

AN ABSTRACT OF PROCEEDINGS AT THE QUARTERLY MEETING IN CHICAGO, JUNE 28–29, 1888.

The minutes of the last regular meeting, April, 1888, were read and approved.

The reading of the Secretary's quarterly report was deferred until the following day.

In the matter of certain applications for certificates under the Medical Practice Act, the time was extended for parties to make reply to charges filed against them.

Representatives of two medical colleges, against which charges had been filed, appeared before the Board and submitted arguments to show that their institutions should be considered in "good standing" by the Board. In both cases the matter was taken under advisement. Consideration of cases under the Medical Practice Act occupied the attention of the Board during the remainder of the first day's session.

Pursuant to adjournment, the Board resumed its session at 10 o'clock a. m. June 29.

Under the regular order of business the Secretary presented his quarterly report, in which he said: Although there have been nine importations of small-pox into the State during the year, and the disease is prevalent in many surrounding localities, and especially among the negroes along the Mississippi and Ohio Rivers, there has been

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no spread of the contagion in Illinois, and the outbreaks thus far have been promptly suppressed with only one exception. The two cases in Bond County, at Greenville and at Reno—existing at the date of the last report in April—caused no others in the neighborhood, and up to the latter part of May the State was free from the disease. In May three cases were reported at Metropolis, in Massac County, and in June one at Kaskaskia.

In the early part of the quarter there were localized outbreaks of scarlet fever at Nokomis, Earlville, Nashville, Biggsville, Foreston, and Kinderhook; of German measles at Plainfield and Kinderhook; of diphtheria at Earlville, and of typhoid fever at Mt. Pulaski and Springfield. This latter occurrence will be made the subject of a detailed report to the Board at a later date, when the investigations now being made—and including chemical and biological examinations of the water supply—shall have been completed. The outbreak occurred among the students of Concordia College, some of whom had nursed a little negro waif sick with the disease. It resulted in forty-five cases and nine deaths. The session was interrupted, the classes broken up, and the institution will not be again opened until the premises are put in good sanitary condition.

GENERAL SANITARY WORK.

Aside from the foregoing, the general health of the State has been very satisfactory. A good amount of sanitary work has been accomplished, a number of cities and towns having completed their re-inspections, and others having begun this work for the first time. Galesburg, Cairo, and Sparta are to be especially commended for the thoroughness of their work in this connection.

The circular of the Board addressed to railway managers in April last has met with a very gratifying reception. Many roads have entirely reformed the sanitary conditions with respect to the accommodations for passengers at stations; vaults have been emptied, disinfected, and the contents disposed of so as to avoid future nuisance; and arrangements are now secured for keeping these appurtenances in a cleanly and comfortable condition. Much attention has also been given to the purity of the drinking water furnished at the stations and on the trains.

Work on the investigation of the water supplies of the State has been impeded to some extent by the high stage of water in many of the streams, and lately by the excessive rainfall over large areas. Considerable progress, however, has been made. Time-tables for the collection of water supplies at various points—twenty-three in number—between Chicago and Alton have been constructed, so as to make it practicable to follow the changes, by pollution and purification, in a given body of water from the time it leaves Lake Michigan until it flows past the city of Alton. Reports of the chemical and biological examinations are received in the Secretary's office.

Except with the interruptions noted, samples of water are now collected and examined once a week at Chicago (lake water), Bridgeport, Lockport, Joliet (above and below city), Morris, La Salle, Henry, Peoria, Pekin, Copperas Creek Dam, Havana, Beardstown, Pearl, and Grafton, on the main stream; and from the Kankakee, Du Page, Fox, Big Vermilion and Little Vermilion, Sangamon and Spoon tributaries. Samples will also be taken from Alton and East St. Louis (Mississippi river water), and from other points as found necessary in the course of the work, which will continue six months or more.

In each sample the following determinations are made: Total solids, suspended matter, nitrates and nitrites, chlorine, hardness, free ammonia, albuminoid ammonia, oxygen consumption, and color and odor. By continuing the work through so long a period, and by making the analyses as fully as outlined, it is hoped that the effect of accidental variations will be practically

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eliminated. The amount of flow from some of the tributaries is pretty well known, and before the end of the summer it will be known for all, so that we will then be in possession of data complete enough to enable us to give a fair answer to the question, What is the rate of oxidation in the Illinois river in a flow of four hundred miles, with sources and amount of contamination, and amount of dilution from tributaries, practically known.

The results obtained thus far in this investigation show the importance of a study of the tributaries. The waters of some of these appear to contain a great deal of decaying vegetable matter. The character of these waters will be thoroughly studied, as an understanding of them is of the highest importance to the sanitary welfare of the communities supplied from such sources. The public water supplies of some of the cities and towns are also being investigated.

The investigation of the underground water supplies is making satisfactory progress—records from some sixty different localities, in all parts of the State, having been already secured.

CONFERENCE OF STATE BOARDS OF HEALTH.

In conformity with the instructions of the Board, the Secretary attended the session of the National Conference of State Boards of Health in Cincinnati, May 4 last. The proceedings of this meeting have been published, and it is only necessary in this connection to refer to so much as is of especial interest to Illinois. A committee was established to visit or correspond with the State, Provincial and other authorities having charge of the sea-board quarantines against dangerous infectious diseases, for the purpose of learning the methods in use, and the amount of co-operation such authorities can and will give for the protection of the people of this continent against said diseases. The committee is also authorized to act for the conference for this purpose, and is instructed to report the results of its investigation to the conference and to the State Boards of Health, and to arrange for proper co-operation should any foreign epidemic disease threaten to invade or actually get a foothold on this continent.

The members of this committee are: Dr. J. H. Rauch, Illinois, chairman; Dr. H. B. Baker, Michigan; Dr. C. N. Hewitt, Minnesota; Dr. J. N. McCormack, Kentucky; Dr. T. G. Simons, South Carolina; Dr. James Simpson, California; Dr. John D. Jones, Ohio; Dr. P. H. Bryce, Province of Ontario, Canada, and Dr. Benjamine Lee, of Pennsylvania. Sub-committees were subsequently appointed to visit personally, where necessary, all the quarantine stations on the Atlantic and Pacific coasts, from the St. Lawrence to the Rio Grande, and from Oregon to Lower California; these subcommittees to secure the co-operation of the States should cholera or any other epidemic disease obtain a foothold.

The chairman of the general committee is a member *ex officio* of each of these subcommittees, and was requested by the members to formulate instructions as to the lines on which the investigations of the various quarantine establishments should be conducted. This has already been done, and in order to cover the ground more completely Drs. F. A. Gerrish, of Portland, Maine; C. A. Lindsley, of New Haven, Connecticut; H. S. Orme, of Los Angeles, California, and J. N. Evans, of South Carolina, have been added to the committee.

NATIONAL QUARANTINE.

Regulations approved by the President of the United States, and promulgated by the Secretary of State to United States consular officers, have been re-published for the information of United States quarantine, State and municipal health officers. These are based upon Section 2 of the Act of 1878, which provides that whenever any infectious or contagious disease shall appear in any foreign port or country, and whenever any vessel shall leave any infected foreign port, or, having on board goods or passengers coming from any place or district infected with cholera

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or yellow fever, shall leave any foreign port bound for any port in the United States, the consular officer or other representative of the United States at or nearest such foreign port shall immediately give information thereof through the Department of State, and shall report the name, the date of departure, and the port of destination in the United States; the object being to secure timely advice of the outbreaks of cholera and yellow fever, and of the probable transportation of the poisons of these preventable diseases in vessels bound for this country.

The Marine Hospital Service, through the Treasury Department, has also secured instructions to the Revenue Marine Service to co-operate in the prevention of the introduction of any foreign pestilence as far as practicable.

The maritime quarantine service is better administered at this time than ever before.

Thus far, although Asiatic cholera still exists in South America, there has been no intimation of its reappearance in any of the districts of Europe which were infected last year, nor of its development in any of the countries which were then threatened.*

CONFERENCE OF LOCAL HEALTH AUTHORITIES.

The conference of health authorities of cities, towns and villages of the State, for the purpose of promoting the work of local sanitation, which was authorized at the April quarterly meeting, was held at the State capitol on May 17–18.

Professor O. C. De Wolf made an address upon the "Disposal of Garbage"; Mr. Genung upon the "Plumbing and Drainage of Houses"; Professors Long and Curtis upon "Water-Supply Pollution"; Dr. Buckley read a paper on the "Disposal of Nightsoil"; and Dr. Cohen upon the "Methods of Prevention and Suppression of Epidemics of the Contagious and Infectious Diseases."

The Secretary reported on the "Registration of Vital Statistics," and the attempts of the State Board to secure better legislation on the subject. It was shown that too much is asked of the physician under the present system.

The necessity for a uniform health organization for cities and towns throughout the State led to the adoption of the following resolution:

"Whereas, Uniformity in the organization of the various boards of health of this State, together with having their powers and duties clearly defined by law, with the full and clearly defined means of enforcing the order of said boards, is a matter of such importance as to demand the attention of our law-makers; therefore be it

"*Resolved*, That a committee of five be appointed to prepare a bill for an act to create boards of health in the several cities and villages of the State, defining their powers and duties and fixing their compensation, and cause the same to be presented to the next General Assembly of this State, and urge its passage either as an amendment to the present act for the incorporation of cities and villages, or as an independent law."

MEDICAL EDUCATION AND STATISTICS.

In justification of the general acceptance, both in this country and abroad, of the conclusions in the reports of the Illinois State Board of Health on the subject of Medical Education in the United States and Canada—and with especial reference to the accuracy of the statistics contained in those reports—the following passages in the address of the President of the American Medical Association, delivered at the Thirty-ninth Annual Meeting, on the 8th of May last, are noted.

"That the professions of law and medicine are overcrowded in this country, no man of common observation will deny. The ratio of professional men in the

* Since the date of the meeting, two deaths from cholera are reported at Messina, Italy.

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United States to the population exceeds that of any other country in the civilized world, so that any legitimate means of checking this evil which can be devised and carried into practical effect must be hailed by the medical world, as well as the general public, as an inestimable boon. The statistics recently published by the Illinois State Board of Health tending to show the annual number of graduates in medicine within the last three years, and the conclusions based upon those statistics by the medical journals of the country, I have reason to believe, are not entirely accurate. In support of this opinion and the views expressed in the foregoing part of this address, I shall take the liberty of directing your attention to a résumé of statistics bearing upon this subject furnished me through the kindness and courtesy of Hon. N. H. R. Dawson, United States Commissioner of Education.

"These will, no doubt, exhibit in a more forcible and impressive manner to your minds the special subject under consideration than any individual argument, however logical or conclusive, that could be presented, particularly when it is remembered that they are prepared under the immediate authority and direction of the United States Government, having at its command far greater resources than any one State or county could employ."

So far as it is possible to discover in the extract from the "Résumé of statistics"—for it is obviously only an extract which is furnished in the address—so far as appears from this extract the figures of the Commissioner of Education relate to a single year, and not to "the annual number of graduates in medicine within the last three years."

This appears to be the college year 1885–86, during which the Commissioner found "89 regular, 10 eclectic, 13 homœopathic, and 2 physio-medical schools" in existence—in the sense of holding sessions and graduating students.

The Board's report, however, includes all colleges in existence in 1885–86, while the Commissioner's figures are intended to include only those which had classes of graduates.

Each succeeding year's catalogues and announcements are carefully examined; where the names of matriculates are published these are compared name by name, and all duplicates are deducted from the total. It may be explained that the desire to show a large attendance, and also to reduce the apparent proportion of graduates to matriculates, leads a certain class of schools to this duplication of names.

The "Forty-fourth Annual Catalogue and Announcement" of one such school, in which there are 46 duplicates in a claimed total of 216 matriculates in attendance upon the sessions of 1886-87, was received by the Board. The number of graduates was 63, and the claimed proportion of graduates to matriculates is 29 per cent. It should be 37 per cent. The year before there were 56 duplicates detected out of 217 names; total graduates 58; claimed proportion 26.7 per cent.; actual proportion 36 per cent. This year the names of matriculates are not published; but, as in all similar cases, the college will be requested not only to furnish the names in writing for the information of the Board, and to enable it to determine the recognition of its diplomas, but the affidavit will be exacted which the Board now requires of all schools concerning which there is a question as to good faith in conforming to the standard of minimum requirements, or of enforcing their own published regulations, or of furnishing the instruction and facilities advertised.

It must be obvious that statistics compiled, and data accumulated and treated in the manner herein indicated,* have a measure of value and accuracy not attainable by any agency restricted to the purely vol-

* Before the publication of each issue of the report advance-sheets, "proofs," or copies of the immediately preceding report are sent to the proper officers of every institution concerned, with a request for examination, for the correction of any inaccuracies, and for the addition of any new matter pertinent to the subject.

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untary information contributed from interested sources and over which the agency may exercise no control. The importance of the recognition of a medical college as in "good standing" in Illinois, under the Medical Practice Act of the State, is felt throughout the entire country, as there is not a medical college that does not desire the recognition of its diplomas by this Board. It is this which has made it practicable to issue a series of reports on medical education and medical institutions, the trustworthiness and utility of which have not only never heretofore been questioned, but which have been widely recognized both in this country and abroad as exercising a marked influence in raising the standard of medical instruction and of the qualifications necessary for the practice of medicine, and thereby improving the status of the medical profession, with consequent benefit to the public welfare.

MEDICAL PRACTICE ACT.

During the quarter fines of $100 each have been imposed upon five unqualified men who violated the law. Other suits are pending. It is now one year since the new law went into effect, and nearly all who were required to take out certificates have done so. The effect of this law, especially with regard to itinerant showmen and mountebanks who sold medicines, has been marked and gratifying. The Board refused to grant licenses to this class, believing their business to be prejudicial to the interests of the people, and in so doing refused $11,400 in license fees. During the month of June, 1887, there were twenty-two itinerant companies in the State whose sales daily amounted to about $2,000. It is safe to assume that this law has saved the people of the State not less than $250,000 during the past year.

In the matter of the recognition of the diplomas of a medical college, taken under advisement at Thursday's session, consideration thereof was resumed, and on motion it was decided not to issue certificates to three graduates of said school whose applications were pending, for the reason that the school had not in their cases complied with its own printed requirements or the requirements of this Board with respect to preliminary education.

SANITARY CONVENTION AT ALBION, MICHIGAN.

WATER SUPPLY.

Professor VICTOR C. VAUGHAN, M. D., of Ann Arbor, Michigan, in an address, said: I suppose, if we were supplied with pure air, unadulterated food, and uncontaminated water, there would still be room for doctors and undertakers, but disease would be greatly decreased, suffering lessened, and life prolonged. It is a law applicable to all creatures, that when compelled to live upon their own excreta they sicken and die. This is true of the most minute organism. It is true of man.

The most prominent of English historians has said: "The only real knowledge is that which can be converted into practical power. It is the only knowledge that has life and growth in it. All else dries up like the rain drop off the stones, or hangs like dust about the brain." Let us make this discussion as practical as possible.

There are three different sources from which we can draw our drinking water—cistern water, surface water, and subterranean water. The purity of cistern water will depend on the atmosphere through which it falls, the roofs upon which it falls, and the cistern in which it is collected. It is more likely to be contaminated by the atmosphere in manufacturing districts than in Michigan. Great attention should be given to the roofs where leaves, branches of trees, and the excrement of birds are likely to accumulate. The only way to keep the cistern itself free from contamination is to build it so well that no water from the surrounding soil will be allowed to enter it. To do this the excavation should be one or two

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feet larger than the cistern. Several cases of typhoid fever have been known to come from the use of cistern water. In one case a cistern was used which was surrounded by numerous privy vaults. The cistern leaked, and if water can leak out it can leak in. What effect would it have to filter the cistern water? This depends upon circumstances. The ordinary filter is a delusion and a snare. Charcoal filters do not free organic matters. Organic matter collects in the filter and it becomes a hot-bed of disease.

The purity or impurity of surface water will depend on the atmosphere through which the water falls and the soil through which it flows. A few years ago I visited a city in this State to study the water supply. It was gathered from the hills, which are studded with stables, pig-pens, and all kinds of impurities. It was washed down into the ravine and then into a pond from which the supply was obtained. Typhoid fever prevailed in this locality to a great extent. Surface water may be very pure. This is true where it falls on a surface unpolluted, and where the volume of water is large. The great volume causes a dilution. Most large cities use surface water, and this has all degrees of purity and impurity. Detroit has a fairly pure supply from the lake. Some cities have suffered greatly. This is true of Philadelphia. During the Centennial Exposition the contents of the cesspools passed into the river, then down a short distance into the water supply, and there was a great prevalence of typhoid fever. Some suppose that flowing water will purify itself. There may be a grain of truth in this, but germs have been known to be carried a long distance and still continue poisonous. The citizens of Trenton and Wyandotte have been complaining of the contamination of their water supply by the city of Detroit. Garbage has been carried down the river, and Trenton and Wyandotte have suffered greatly from typhoid fever. It is probable that a large stream of sewage may be carried a long distance without being distributed, because of its different temperature and different specific gravity. This is illustrated by the Missouri and the Mississippi. The Missouri is muddy and still remains muddy after running into the Mississippi. This principle is also illustrated by the Gulf Stream, which retains its warm temperature and does not become admixed with the water of the ocean. So the probability is that if one city pours its sewage into the river, the city below will drink this sewage.

The purity of subterranean water depends on the purity of the soil through which it percolates. The popular idea is that percolating water purifies itself. This has been demonstrated to be a sad mistake. This is especially true of the sandy soil in this State. The distance organic matter will pass through a soil and still maintain its virulent properties is remarkable. (Dr. Vaughan here referred to experiments made in Richland, Kalamazoo County, showing that lithium sown over a proposed cemetery passed to a well thirty rods distant. He also stated how the germs of typhoid fever had been caried through a mile of porous soil in Lausanne, Switzerland.) Subterranean water will never be pure unless it passes through a pure soil. You can't have pure water as long as you have privy vaults and cesspools, and if there are any disease-germs in your soil they will find their way into your well.

It is known that cholera is spread by bad water. Where do we find the home of cholera? In India. Why do they have it in India, and why so constantly? Every few years the people of India hold festivals. They make pilgrimages a thousand miles on foot. The festivals occur in the hot months, just before the rains. They only eat meat that has been blessed, and after being blessed not a bit of it is thrown away. They are crowded in huts. They travel in small bands. They use the banks of rivers when obliged to obey the calls of nature. Disease and death make great havoc among them, and their corpses are buried in hills scooped in the sand. Cholera invariably

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breaks out, and the streams become contaminated with the cholera germs.

We shudder at the ravages of cholera, but let us come nearer home. Typhoid fever slays its hundreds where cholera slays its tens. Every death from typhoid fever is unnecessary. If the soil were not contaminated none would occur. Yet there are 1,000 deaths from this disease in Michigan each year; and for every one who dies ten persons are sick, and not a case is justifiable. Typhoid fever comes to those in the prime of life. Each patient is sick on the average about four weeks, and there are ten thousand sick during the year. This means not only a great loss of wages, but a nurse is required for each person sick, so that twenty thousand people give up their entire time to this disease four weeks out of each year. You may keep your premises clean, but only a little fence separates you from your neighbor, and he may be careless. If that neighbor should knock you on the head in a dark night he would be sent to prison, but he may contaminate your well, and rob you of your life and your family, and you do nothing. The time will come when it will be a criminal offense for any man, through carelessness, to give his neighbor a communicable disease.

During the past fall typhoid fever prevailed very extensively at Iron Mountain in this State. One of the physicians at Iron Mountain said that the people there were drinking the foulest water he ever knew people to drink. A sample of this water was sent me. After putting it in beef tea and keeping in an oven eight or ten days, the residue was injected in a cat's back, and the temperature rose in twelve hours from 99 to 104 degrees. This could not have been due to the cat's mind; it must have been due to the germ.

Some time ago a convention was held by the State Board in one of your neighboring cities, where the wells as a rule were only ten feet deep. The ground was honeycombed with cesspools. We earnestly pleaded with those in attendance at the convention that they would boil the water which they used. Yet in less than a month several who listened to the speeches were dead from typhoid fever. Do not regard what is said here as only talk. You are in danger of having typhoid fever so long as you have wells and privy vaults. Until a system of sewerage is introduced you should substitute for the privy vault the dry-earth closet. Next find a good water supply. I would advise you to employ some good civil engineer, pay him, and have him investigate the different sources of supply. Then decide where the water shall come from. Then get bids from different water companies. In Ann Arbor we paid a civil engineer two hundred and fifty dollars, and we now pay only forty-five dollars a hydrant.

SCHOOL HYGIENE.

On this subject H. W. BRADLEY, of Albion, Michigan, said: The character of the citizens of the future will be determined, to a great extent, by the character and success of the schools of today. The success of the schools depends upon the physical as well as the mental and moral training of the pupils. The belief is quite general that the children of American families are physically declining, and "too much education" is frequently given as the principal reason for this degeneracy. This subject is one of vital importance, and should be discussed by school officers, that they may properly construct and arrange school buildings; by tax-payers, that they may realize full value for money expended for school purposes; by teachers, that they may care for the health of pupils; by physicians, that they may enlighten others less favored with opportunities for scientific research; by fathers, that they may make all necessary provisions; and by mothers, that they may perform their sacred duties acceptably. It is from a mother's standpoint that I look at this subject, and, though not expecting to instruct the members of this convention, I do hope to receive enlightenment from others.

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Ventilation.—The selection of good sites for school buildings, and arrangements for proper ventilating, heating, and lighting them, are prominent features of this subject. The external beauty of the structures should be of small moment compared to these. One pleases the eye; the other affects the whole system. The subject of ventilation may receive all due attention in city schools, superintended, as they are, by educated men, and controlled by intelligent boards; but many school-houses in rural districts are very deficient in this particular. It is impossible for children to continue in perfect health any great length of time when they are compelled to endure several hours' confinement daily, in a room of unwholesome conditions. The air in our school-rooms (and homes also) should be able to stand the severest tests modern science can bring to bear upon them. The water should be above suspicion. The grounds and out-buildings ought to bear constant testimony to the doctrine that "Cleanliness is next to Godliness."

High Buildings.—The signs of the times seem to indicate a reform in the old custom of erecting school buildings many stories high, and then holding the more advanced classes in the higher rooms. The long train of ills following this practice is known only too well to the victims, mothers, and physicians. Welcome the reform, and may it reach every village in our State! The suggestion has been made by patrons that, in our smaller towns, ward school-houses be extended so that more grades may receive instruction there. This, of course, would exempt many of the younger children from the long, tedious walks necessitated by attending central schools.

Recess or no Recess.—I hesitate to criticise anything that receives the hearty support of some of the best teachers throughout our State, but the plea that comes from the mothers induces me to mention the subject. Mothers claim that individual recesses are extremely distasteful to timid children, and that they fail to avail themselves of the opportunities offered; that they often return from the school-room (after confinement during an entire session) with throbbing temples and feverish brow—nature's protest against the system. Some people think that we should go back to the old-fashioned plan of short, separate recesses. Others think that all should have a recess of at least ten minutes duration, where boys and girls and teachers may all go out of doors together and inhale the pure air of heaven, while windows and doors are thrown open in their absence. One writer says: "They would return from such a recess with blood made fresh and red, eyes and nerves rested, hunger appeased by a light lunch if desired, and nature's wants relieved; all would return to rooms cleansed of their foul exhalations by the flood of air pouring through them."

Teachers.—"The school teachers of to-day are the guardians of America's safety." And yet many of these teachers are young people, who have been rushed through a course of study and received the regulation diploma and certificate. They are often lacking in the maturity of mind and judgment necessary for the duties they assume—training children for future citizenship. Sometimes teachers are employed whose bodies are diseased and brains "muddled" by the use of narcotics. If it is our duty to examine the air in the school-rooms, it is a far *more imperative* duty that we understand the nature of the *moral atmosphere* of our teachers. Michigan now wisely decrees that every teacher shall know something about the science of health, and be prepared to teach the same. It is our privilege, as parents and patrons, to insist upon their making practical use of this knowledge. The better they understand sanitary science, and the more thoroughly they teach it, the better it is for the children. In order that we may *know* something about *how well* these matters are attended to in our schools, we would advise frequent visits to the school-rooms. The

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mind can not reach any great degree of successful development within a body composed of distorted bones, diseased nerves, compressed lungs, and bad blood.

Food and Dress.—Food and dress are important factors in the health of school children, and belong to the mother's kingdom. Teachers may suggest, physicians advise, fathers protest, but the mothers usually control. A wide field for reformation is here open for the labors of intelligent, Christian women. The requirements of health should never give place to the demands of fashion. The chest should have a good chance to expand, and the blood an opportunity to circulate as freely through the veins of our girls as of our boys. In winter we should procure for them mittens and overshoes, warm cloaks and hoods, thick shoes with low heels, and their forms should be enveloped with flannel. Rich and poor people alike should give their growing children substantial unadulterated food, with few, if any, dainties; supply them with milk, if possible, bread (graham is best), and ripe fruits in their season.

"Early to bed and early to rise" is as good a sentiment to teach the children of to-day as it was fifty years ago. We ought never to allow them to be long idle or unoccupied, and should expect them to perform tasks requiring manual labor. Let us teach the little ones the value of pure thoughts, and the danger of evil ones, which, fostered, lead to pernicious, ruinous habits. We can not hope that our children will not come in contact with evil, especially as in daily passing to and from school they meet with evil in one of its worst forms —intemperance—and alluring rooms are placed all along our public thoroughfares. That they may meet evil bravely and rise above it grandly is what we work and pray for.

After sowing all this good seed, and doing all of these very sensible things, may we not trust that their development will result in healthy, vigorous bodies, wherein the brains may live and grow. I know of nothing better to give our children than the glorious combination of industrious habits, healthy bodies, strong minds, and good morals.

Discipline.—Many of our schools are models of excellence in regard to discipline, and it would be idle to contend that discipline is unnecessary. The accumulation of useful, practical knowledge should be the aim of all school efforts, and this ultimate result ought never to be sacrificed for mere forms and ceremonies. Any discipline that might prove injurious to the health of pupils, is questionable. We would be sustained in censuring a teacher who would compel children to form out of doors, with wraps removed, for the purpose of entering the school-room in good order, unless the weather was perfectly warm and pleasant. Neither would it be unreasonable in cold weather to expect the teacher to superintend the matter of adjusting wraps for the very small children before they leave the school-house. You may say this is not the teacher's business, but it must be done if they endure the long walks, especially in the country, without suffering. If the teacher does not make it her business, who will?

Overwork.—The extensive course of study and consequent amount of mental work is often held responsible for all the ills that befall the children. This is as unjust as the cramming system is dangerous. If the brain, while in process of development, be overcrowded, there will be a corresponding weakening of the whole system. But our children can stand a goodly amount of hard study and deep thought if the laws of health are strictly observed in all details. Our country needs vigorous thinkers, but she will never find them among the children whose brains have been crowded with facts at the expense of the body. The gay-colored bird gives a lively effect to the jaunty hat on the head of a pretty girl, if we can banish the thought that for her adornment the

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little songster's heart was forever stilled, its musical voice forever hushed. Likewise a young Miss, bearing a diploma as the insignia of her successful pursuance of a course of study, is an interesting sight if her eye is bright, her step elastic, and complexion fresh; but if the honors have been secured at the sacrifice of health the spectacle is deplorable. Do not attribute failures in health to hard study alone. Remember the walks in the moonlight, the improper clothing and food, the hanging on gates, and lingering on piazzas, and then say whether the parents are not as responsible as the teachers. Many object to the competitive system as applied to our youths, and think it has produced a ruinous effect upon their mental as well as physical constitution. Allusion is seldom made to one great danger of this system. Scholars, in their desire to maintain class standing, are often compelled to work beyond their strength, and slight illness often results. Instead of removing the mental strain, and using a few hygienic precautions, physicians are sometimes summoned who prescribe stimulating medicines and quieting powders. You all know the result of the continuance of such a course—confirmed habits of daily doses of the dangerous drugs, until the body is wrecked and soul destroyed; and the victims are not the ones to be blamed. How carefully should the mother guard her children! How conscientiously should the physician who understands the danger, protect these young people, who do not. It would be better economy to pension the small army of physicians sent out from the medical colleges yearly than to support them by paying for professional services for our children, whose health may be *preserved* by giving attention to hygienic rules.

Physiology and Hygiene.—The legislature of our State has shown a deep interest in the citizens of the future, by making a law that "Instruction shall be given in physiology and hygiene, with special reference to the nature of alcohol and narcotics, and their effect upon the human system" in every department of every school, where public money is used in its support. "The district board shall require each teacher in the public schools, before placing the school register in the hands of the director, to certify therein whether or not instruction has been given in the school or grade presided over by such teacher." "And the director shall file with the township clerk a certified copy of such certificate." Any school board neglecting or refusing to comply with these provisions shall be subject to fine or forfeiture.

Any teacher of observation will sustain me in the assertion that boys who commence to use alcohol and tobacco will neglect their lessons and soon lose their ambition. Some men—habitual users of these poisons—have risen to eminent positions in life, but their success may not be a tithe of what it might have been had they been wise enough to have entirely relinquished the use of them.

It is a matter of surprise to teachers to find how readily pupils will learn and comprehend this study when it is properly explained. The wonderful network of telegraph lines called nerves which traverse the whole system, the miraculous organ which at every throb sends the life-giving blood into the most minute parts of the body, the great busy brain at work within the cranium, the intricate machinery of the digestive apparatus, the manner in which air penetrates the cells of the lungs, and then the deadly effects of alcohol and tobacco on all of these living tissues, are as well understood by children from five to ten years of age, as by men and women of middle life. A superintendent of schools in Massachusetts says: "This study ought to be taught. If the list of studies is already great, take something else out and make room for this, for it is entitled to the right of way."

Frances Willard says: "The life of a drinker of alcoholics has but two periods; in the first of which he could leave off if he

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would; in the last he would leave off if he could. How shall the young and thoughtless avoid this supreme peril of their youth, unless they know about it, and how shall they know unless they be taught, and how can instructors teach unless they have the proper authority?"

In the discussion of the subject, Professor V. C. VAUGHAN, M. D., said: The public schools are doing grand work and I do not believe that the course of study is too long. But I do believe that the hygienic conditions of the school-room are neglected; that children breathe bad air, and hence get headache. Brain-work in itself is not likely to hurt any one, provided the air is pure and fresh; but who can study when he is tired or diseased? The remedy is to make every teacher give some attention to sanitary science. The board of examiners should examine every teacher in hygiene, so that teachers would know about ventilation, etc. My observation has been that the school boards try to have everything right. Money is not spared to get the very best. Nearly every man has his own theory about ventilation, but the school board should employ some competent man who knows how to ventilate and heat. Children are often injured at home as well as at school. Children study at home, and by one defective lamp. It is said the schools ruin the scholars' eyes, but I believe that more damage is done by study at home. It is common to say that schools should not be built on hills, or more than two stories high—that climbing is bad. I hold that if it is properly done—if the scholar walks erect and bends only the knees in walking—it is good exercise.

THE PREVENTION OF THE COMMUNICABLE DISEASES, FROM THE STANDPOINT OF THE STATE BOARD OF HEALTH.

HENRY B. BAKER, M. D., Secretary of the Michigan State Board of Health, in speaking of its work during the past fourteen years said: the board evidently believes that the "Prevention of the Communicable Diseases" is one of the most important measures which can engage its attention, and that work for this purpose is the most important that local boards of health can undertake. It is not difficult to imagine why this is true, because, by studying the vital statistics, it is found that the diseases which cause the greater proportion of the premature deaths in Michigan are the communicable diseases. Named in the order of their importance, the five diseases which cause most deaths in Michigan are: (1) consumption, (2) diphtheria, (3) pneumonia, (4) typhoid fever, and (5) scarlet fever. Excepting perhaps pneumonia, these are all communicable diseases; in common parlance, they are "catching"; not all of them are contagious, but all are in some manner spread from person to person. It thus appears not only that the communicable diseases have caused a large proportion of the premature deaths, but a large proportion of *all* the deaths, and that if we should prevent these communicable diseases we would change the character of our vital statistics—a much larger proportion of our people would die in ripe old age, a much larger proportion of the living inhabitants would be in the vigor of youth, and in the productive and enjoyable period of middle age; there would be prevented in each year in this State of Michigan, two or three thousand deaths of children from diphtheria and scarlet fever, and perhaps a thousand deaths of persons in the prime of life, from typhoid fever. Knowledge of these facts should prompt to greater efforts for the prevention of these diseases, and inasmuch as we now know how to prevent them, it seems strange that people do not uniformly act for their prevention. Probably the people would so act if they all knew that so large a proportion of the mortality is caused by these diseases, that they *are* preventable, and especially if all knew just *how* to prevent each one of these diseases.

These sanitary conventions do much to

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spread such information; but they do not reach the people of the whole State fast enough, and the local boards of health, engaged as they are in the active work of restricting diseases which should have been prevented, and in other practical sanitary work, need the aid supplied by the different lines of work carried on by the State Board of Health, in order to spread that information which is essential to induce the people generally to sustain and co-operate with the local health authorities in restricting and preventing these diseases.

Some of the Work of the State Board of Health.—By means of reports from local health officers, physicians, and others, and in all practicable ways, the State Board collects information on these subjects; and in all practicable ways it seeks to spread this information where it will do the most good. It tries to have the information which it collects, and the best advice which it can give, placed before people at such times that it will be most likely to be accepted. Pamphlets, such as are distributed in this audience, containing concise statements of facts and directions how to restrict each one of these communicable diseases, are sent to localities where the diseases occur, to be distributed to the neighbors of the families in which the communicable disease occurs, because at such times of danger the neighbors will be most likely to read such pamphlets, and because after reading them they will then be most likely to co-operate with the local health officer for the restriction of the disease. Thousands of pamphlets on each of the most dangerous communicable diseases are distributed by the State Board. They are being distributed all the time. In order to distribute each kind of pamphlets in the localities where there are persons sick with the particular communicable disease of which that kind of pamphlet treats, it is necessary to know the localities in which each such disease occurs; and this information to the office of the State Board is provided for by a law which requires every health officer in the State to keep the secretary of the State Board of Health constantly informed on this subject. There are in Michigan over 1,400 local boards of health—each one required by law to have a health officer. The law requires every householder and every physician who knows of a case of one of these dangerous diseases under his care to promptly notify the health officer or other officer of the local board of health. When these laws are faithfully obeyed, the local health officer can take prompt action for the restriction of the dangerous disease, the secretary of the State Board of Health can promptly supply pamphlets of instructions which the health officer can distribute to the neighbors, and frequently the central office can take other action which tends to aid the local officer in restricting the outbreak and preventing an epidemic; and what is of even greater consequence, in so educating the people of that vicinity that thereafter they will be more ready to restrict that disease, and many of them be able to prevent outbreaks which otherwise would occur. Although this method of teaching the prevention of each of these diseases, while the disease is threatening, seems to be the best that is practicable for the State Board of Health, it seems too bad that it is not possible for the people of a locality to learn before a first outbreak occurs; but something like experience or personal observation seems to be essential in order to awaken sufficient interest in the subject.

But while it is probably impossible to reach the adult population with facts and advice on these subjects faster than in some such way as it is being done by the methods just described, it certainly seems possible, so far as concerns the rising generation, to strike at the root of *this* ignorance which annually causes the death of thousands among us. This leads me to say that, in my opinion, *the Prevention of the Dangerous Communicable Diseases should be taught in the public schools.*

As that knowledge which tends *directly*

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to the preservation of life is of more worth than that knowledge which tends indirectly thereto, the teaching of physiology and hygiene in the public schools as it is usually done may well be displaced by the teaching of the exact measures required for the prevention of those dangerous communicable diseases which cause the greater part of the deaths. Of course, if the teaching of physiology and hygiene as it is usually taught is of more consequence than some other studies, the displacement should be of such other studies; but the thought I wish to convey is that whatever is displaced it is of prime importance for the welfare of humanity that the exact principles of the prevention of those diseases which cause the most deaths should be taught in the public schools. It is as true now as when the Bible was written that "My people are destroyed for lack of knowledge."*

When the present methods of teaching "physiology and hygiene" were invented, *sanitary science* had not been evolved; but now we know approximately what diseases kill us, and we know how to prevent the most important of them. Is it not high time this knowledge were being utilized by the teachers throughout this country for the saving of the lives of those whom they are educating?

Here let me answer the question which some of you are wishing to ask—How do we know that we have that valuable knowledge directly useful for the saving of life? The answer is: Because whenever we act upon that knowledge the saving of life follows, and it follows so uniformly that we have come to believe that it is a result of such action. A few illustrations on a large scale are as follows: Computations, made and published a year or two since† show that since the State Board of Health was established, and the approved methods for the restriction and prevention of small-pox have been attempted. the deaths from small-pox in Michigan, returned to the office of the Secretary of State, have been much less than during the five years just before the board was established. Compared with that period, and making allowance for the increase of population, about 1,000 persons appear to have been saved from death from small-pox in Michigan during the eleven years, 1873–84. Similar computations indicate that about three thousand persons were saved from death from scarlet fever in Michigan during the same period of time.

Coming down to a more recent period of time, official reports from the health offices in Michigan, for the year 1886, have been compiled, under my direction, by Mr. George E. Willitts, whom many of you know as at one time a student at the college in this city. Among the pamphlets distributed in this audience you may see two diagrams which exhibit graphically some important facts worked out by Mr. Willitts in the office of the State Board of Health. From the diagram relating to scarlet fever, you may see that while in those outbreaks in which isolation or disinfection was neglected there was an average of nearly fourteen cases to one outbreak; in those outbreaks in which both these approved measures were enforced there was an average of less than three cases to an outbreak. Therefore, there were eleven cases to an outbreak saved by the more perfect methods, namely, by isolation and disinfection. That is, in the fifty-eight outbreaks in which the more perfect methods were enforced there was, compared with those of less perfect methods, a saving of 638 cases of sickness and forty-eight lives from this one disease in a single year. Probably the saving of life and health through efforts at the restriction and prevention of scarlet fever in Michigan in that year were many times what these figures show; but these figures supply a scientific basis for the comparison of two methods of action. The facts are obtained from the official reports of the health

*Hosea, Chap. III, 6.

†Proceedings Michigan State Board of Health, pp. 11–16; Annual Report Michigan State Board of Health, 1886, pp. 177–181.

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officers in whose jurisdictions the outbreaks occurred, and they are reliable so far as relates to all outbreaks properly reported.

The other diagram before you, relating to diphtheria in Michigan in 1886, shows even a greater saving of life and health through efforts for the restriction and prevention of that disease, there being an average of over sixteen cases to an outbreak in those outbreaks in which isolation or disinfection was neglected, while there were less than three cases to an outbreak in those outbreaks where both isolation and disinfection were enforced—a saving of over thirteen cases and over two deaths to each of the 116 outbreaks in which the more perfect methods were employed, compared with those outbreaks in which one important part of the work was omitted. This indicates that in the 116 outbreaks alone there were saved 298 lives and over 1,500 cases of sickness from diphtheria in Michigan in a single year by improved methods for its restriction and prevention.

These computations from official reports are submitted, not as indicating the total saving of life and health from diphtheria and scarlet fever in that year by such efforts as are recommended by the State Board of Health, but as supplying positive evidence that these diseases *can* be restricted and in great part prevented whenever the people and their officers coöperate promptly and fully in obeying the laws, and in carrying out the advice which is freely given by the State Board of Health.

If you ask what is that advice which the State Board of Health gives—what, in its opinion, are the best known measures for the restriction and prevention of each of the dangerous communicable diseases—I must say that the time at our disposal this evening will hardly permit of my stating the advice in full; but it may be said that the methods are not the same for all diseases. Thus, the most important preventive of small-pox is vaccination; and small-pox, diphtheria, and scarlet fever are *contagious* diseases, and demand isolation of the sick and disinfection of the entire contents of the house, or at least of the room in which the disease has been; while *typhoid fever* is probably *not contagious*, but demands the disinfection of all bowel discharges, and especial care for the protection of the purity of the drinking water. The spread of *consumption* may *probably* be lessened by a general attention to the disinfection of all the sputa of consumptives.

But for full, though concise statements, I must refer you to the several pamphlets which are published by the State Board of Health for gratuitous distribution.

THE FORMATION AND EXCRETION OF URIC ACID, CONSIDERED WITH REFERENCE TO GOUT AND ALLIED DISEASES.

BY A. HAIG, M.A. AND M. D., OXON., M.R.C.P.,
Physician to the Royal Hospital for Children and Women.

Some researches on the excretion of uric acid, on which I have been engaged for several years, now seem likely to throw new light on the part played by this substance in the causation of disease.

The diseases to which my results more especially apply are gout, a certain form of headache (migraine) (*Med. Chi. Trans.*, vol. lxx), some cases of epilepsy (*Neurologisches Centralblatt*, March 1, 1888), and lastly, rheumatism, acute and chronic, though the evidence of uric acid causation is not equally strong in all.

My researches show (1) that the excretion of uric acid (*Journal of Physiology*, vol. viii, Nos. 3 and 4) can be controlled by drugs and foods in a way and to an extent not previously known; that, whatever the amount excreted to-day, it may, within certain limits, be made either greater or less to-morrow.

2. That when uric acid excretion is diminished relatively to the urea, the diminution is due to retention in the liver and spleen, and possibly in some other

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organs and tissues, of part of the uric acid which was formed; and, conversely, when uric acid excretion is increased relatively to the urea, such increase is due to a washing out of a store previously accumulated in the above organs and tissues.

3. That the formation of uric acid bears an almost constant relation to that of urea, though its excretion can be varied by food and drugs to a considerable extent.

4. That uric acid is probably never in excess in the blood except when alkalies or other solvents wash it out in considerable quantities from the stores which have gradually accumulated in the above-mentioned organs.

5. That excess of uric acid in the blood, brought about in this manner, is a sufficient cause of many of the symptoms of the diseases I have mentioned, and probably of others also.

6. That drugs and foods which diminish the solubility of uric acid diminish its excretion and lead to retention and accumulation; and, conversely, foods and drugs which increase its solubility facilitate its excretion and prevent retention.

7. That drugs which diminish the solubility and excretion of uric acid are harmful in the diseases connected with it, while drugs which increase its solubility and excretion are useful in these same diseases.

I began my research by investigating a form of migraine, or, as I now prefer to call it, uric acid headache, from which I had been a sufferer all my life; and my first observation of importance was that leaving off butcher meat (*Practitioner*, Aug., 1884, and March, 1886) produced gradually-increasing immunity from attacks. This and the clinical relationship of the headache to gout led to my examining the urine and finding a very marked rise in uric acid excretion, corresponding to the headache (*Med.-Chir. Trans.*, vol. lxx).

I then began to speculate as to the cause of this uric acid fluctuation; and, having noticed the apparently great gout-producing power of ales, and their strong acid reaction, I was led to test the effects of acids, alkalies, and, finally, of many other drugs, on the excretion of uric acid, obtaining results some of which form the subject of this paper.

The processes used in my experiments are as follows: for urea, the hypobromate test, with the apparatus of Dupré, variations of temperature and pressure being allowed for; for uric acid, Professor Haycraft's process (see *Journal*, vol. ii, 1885, p. 1100); and for acidity, a solution of phenol-phthaleine with a graduated solution of soda.

I soon found that acids (*Journal of Physiology*, vol. viii, Nos. 3 and 4) always diminished the excretion of uric acid, and alkalies always increased it; and it thus became easy to see that butcher meat, beer, wine, etc., had made my headaches more frequent, because they caused a rise of acidity, prevented the free elimination of uric acid, and accumulated a store of it in the body, which on a future occasion would produce a headache. Alkalies, or a somewhat vegetarian diet, on the other hand, by facilitating the regular excretion of uric acid, would prevent any such troubles; and in proof of this, I found that by first accumulating uric acid with acids, and then washing it out into the blood with an alkali, I was able to produce the headache in question.

Sir A. Garrod (*Journal*, vol. i, 1883, p. 653 [Lumelian Lectures]) has discussed the gout-producing powers of wines and beers, and puts it down entirely to the unfermented matters they contain. In discussing the matter he says the light wines which contain a considerable quantity of acid vegetable salts do least harm, while the heavy wines, as those of Spain, do most harm and are almost devoid of vegetable salts.

Speaking of acidity, he says that fresh fruits diminish acidity, through conversion of their vegetable salts into carbonates, and this I think gives us the key to the whole matter.

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Both the above kinds of wines are strongly acid, but in the light wines the acidity is due to vegetable salts which are converted in the body into carbonates and act as alkalies, so that they cause no retention of uric acid, and have, as observed, but little gout-producing power. The heavier wines, on the other hand, have an acidity due to more fixed acids; they act as a dose of acid does, and have great gout-producing power; and the same applies to ales and stout, which are, as I have shown (*Med.-Chir. Trans.*, vol. lxx, p. 12 of paper), strongly acid and cause great retention of uric acid; so that the acidity of these beverages explains their action in gout-production far better than their unfermented matters, the action of which is not very clear; and in gouty patients who indulge in these beverages after an interval of care, the rise in acidity they occasion and the increase of arthritic pains can be watched.

Foods, again, influence acidity by the salts they contain (see Sir W. Roberts, *Urinary and Renal Diseases*, ed. iv, p. 56), fruits and vegetables, as we have seen, diminishing acidity, and animal foods containing large amounts of phosphates, sulphates, and chlorides increasing acidity. Some foods may also contain salts having a special solvent action on uric acid; for example, phosphate of soda.

Sir A. Garrod in the above-quoted lectures gives a very interesting table from Lehmann of the effects of different diets on the excretion of uric acid: thus

	Urea.	Uric Acid.
Mixed diet	32.4	1.1
Animal diet	53.1	1.4
Vegetable diet	22.4	1.0
Non-nitrogenous diet	15.4	0.7

and he draws the inference from it that uric acid is not so much influenced by the nature of the food as urea is; but if the uric acid excretion is regarded relatively to the urea this conclusion will, I think, have to be altered; and I now give the table with the addition of my figures, showing the relation of uric acid to urea on each diet:

	Urea.	Uric Acid.	Relation.
Mixed diet	32.4	1.1	1–29
Animal diet	53.1	1.4	1–38
Vegetable diet	22.4	1.0	1–22
Non-nitrogenous diet	15.4	0.7	1–22

A long series of observations on the relative excretion of uric acid to urea has convinced me that a relation of 1–33—that is, 1 grain of uric acid for 33 grains of urea, is about the average or normal; and taking a long period a result somewhat near this is obtained. Thus in four months I excreted 41,804 grains of urea and 1,281 grains of uric acid, relation 1–32.6; but daily variations in this period ranged as high as 1–19, or as low as 1–45; but over a long period these more or less balance each other.

To apply this to the above table, it will be seen that on mixed diet there was slightly excessive excretion of uric acid; on animal diet considerably diminished excretion (retention), and on vegetable diet excessive excretion, some of the previous retention being washed out. And a continuance of the animal diet would obviously soon produce a store of uric acid sufficient to account for anything from a "bilious" to a gouty attack. The results in these tables are similar to those I have obtained with various diets, and the relation of uric acid to urea are just those I meet with in my everyday work.

I have been led to infer from all these facts, that while the formation of uric acid alters but little from its relation to urea of 1–33 (subject, I have no doubt, to some small variations), its excretion is subject to frequent and great fluctuations, which account for its action in the production of disease.

Iodide of Potassium has in five-grain doses but little action on the excretion of uric acid; in larger doses it acts apparently merely as an alkali. Iodine taken as a tincture has little or no direct effect.

Phosphate of Sodium is a well-known

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solvent of uric acid, and it does, just as one would expect, greatly increase its excretion; it is probably the chief solvent of uric acid which is naturally present in the body.

Salicylates have the very important action of rendering the excretion of uric acid independent of acidity—that is, a rise in acidity does not cause retention while salicylates are present in the blood; and this fact may explain much of the value of these salts in diseases connected with uric acid (see discussion on my paper in the *Proceedings of Roy. Med.-Chir. Soc.*, January to March, 1888, p. 325).

Lead and Iron.—The urates of these metals are very insoluble, and they cause, as one would expect, retention of uric acid, which, as we shall see, may explain their action in several diseases (paper read at Roy. Med. Chi. Soc., April 28, 1888, reported in *Journal*, April 28; and also Sir A. Garrod, *Journal*, vol. i, 1883, p. 495).

Colchicum.—This indirectly lowers acidity and facilitates the excretion of uric acid. It may also have a direct action on the nerves in relieving the pains of gouty arthritis.

Besides drugs and foods, there are other ways in which the acidity of the blood and tissue fluids may be raised and retention of uric acid brought about, as for instance the formation of acids which are known to occur in dyspepsia; but a more important source of acids is probably to be found in the skin, for a large amount of acid is daily eliminated in sensible and insensible perspiration, and Sir A. Garrod (*Gout and Rheumatic Gout*, ed. iii, p. 258) has shown that when this function of the skin is checked by cold the acidity of the urine at once rises, and *vice versa*, and I have often repeated this experiment, both intentionally and unintentionally, on myself. The application of these facts to the causation of gout by exposure to weather or other sources of chill is sufficiently obvious, and is precisely similar to the case of beer, wine, meat, etc., previously spoken of.

And now to apply some of these results to the explanation of the disease.

The causation of headache of which I have spoken is, I think, fairly well worked out; it can be produced at any time in those subject to it by causing a *plus* excretion of uric acid with alkalies, the *plus* excretion and headache being, as I believe, the signs of excess of uric acid in the blood. If there is no store of uric acid in the body, alkalies will fail to produce either the *plus* excretion or the headache. I have also found an identical uric-acid fluctuation in some cases of epilepsy (*Neurol. Cent.*, March 1, 1888), and I think it probable that uric acid may be the cause of the fits in these cases just as it is of the headache of which I have spoken. Sir A. Garrod (*Gout and Rheumatic Gout*, pp. 459–61) pointed out many years ago that he had found blood drawn during fits of epilepsy to contain excess of uric acid, and this observation affords important support to my belief that we may safely argue from excess of uric acid in the urine to its excess in the blood.

Diet and drug action also affords many important parallels between the headache of urid acid and epilepsy. Thus, the value of a vegetarian diet in epilepsy is amply attested, and I believe that not a few of those engaged in its treatment habitually order their patients to abstain from meat.

Iron is believed by many to do harm in epilepsy, and lead-poisoning sometimes causes epileptic fits. Iron, so far as I know, does harm in the uric acid headache; and both these metals cause, as we have seen, retention of the uric acid.

In a considerable number of cases the fits have been treated by diet and drugs intended to influence the uric acid factor, and so far with some apparent success; but as it is almost impossible to say when a fit has been caused and when it has been prevented, epilepsy presents a problem which is much more difficult to solve than that of the urid acid headache.

I have also been much struck by the large number of cases of epilepsy which

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have a strong family history of gout, rheumatism, or minor uric acid troubles.

Another result of my research is the conviction that a considerable amount of hypochondriasis, heaviness, depression, and irritability may be produced by causing a rush of uric acid into the blood and its excessive secretion, and that the same conditions may be cured or made to give place to the opposite feeling by driving the uric acid out of the blood by an acid, or something that causes retention. There is here, again, an important parallel between epilepsy (*Neurologisches Centralblatt*, March 1, 1888, p. 4) and the uric acid headache; for both are preceded by retention of uric acid, and, preceding both, certain bright and joyous feelings (*loc. cit.*) have been noticed, no doubt corresponding to this detention, just as they correspond to it when it is produced by acids.

And these mental effects of uric acid have led me to think that some forms (especially the paroxysmal ones) of melancholia and mania might yield some results to an investigation of their uric acid connections, though no doubt, in all such diseases, what may be at first functional and due to uric acid is at last associated with vascular and organic change which is incurable.

In this connection, it is very interesting to note that Dr. Broadbent, in his Croonian Lectures of 1887, says: "An unbroken series of gradations may be traced from the irritability and depression of spirits attending functional disorder of the liver up to complete melancholia with delusions"; and he further says this is accompanied by *plus* tension (of pulse), which, if not the cause, is at least an index of the condition of the system on which the mental state depends. These observations are of double interest to me—first, because of the unbroken series of gradations traced from conditions I can produce up to serious mental disorder; and, secondly, because they tend to confirm an opinion I have held for some time, that a high tension pulse is, to some extent and in the absence of other obvious causes, an index of excess of uric acid in the blood.

The relation of gout and uric acid is not a matter of doubt; but my researches give, I think, a better explanation of its intimate pathology than was previously obtainable by showing the way in which urates come to accumulate in the body, and that this accumulation is for the most part due to acids. We have also seen that acids may be introduced from without in food and drinks, may be formed internally in dyspepsia, or may be retained by deficient skin action, and that the result of the rise of acidity from any such cause is a retention of uric acid.

Sir A. Garrod has shown it to be probable (*Gout and Rheumatic Gout*, p. 292) that the cartilages and ligaments of joints are, not only to some extent extra-vascular, but are also less alkaline than the blood and tissue fluids; so that we can at once see why uric acid, which is brought to these parts in blood less than usually alkaline, should be liable to be thrown out of solution and retained in these parts, beginning generally in the smaller peripheral joints where the circulation is least active; and the same reasoning thus applies to retention of uric acid in the joints as was previously used in regard to its retention in the liver and spleen (*Journal of Physiology*, pp. 213, 214), and we now see how a dose of iron, causing retention, or a rise of acidity however produced, may precipitate an attack of gout. Also, why a uric acid headache, or an attack of melancholia or mania, may promptly clear up on the supervention of a gout attack; for the rise in acidity which drives uric acid out of the blood and cures either of the first two diseases drives it into the joint and produces the podagra.

Exercise rather tends to prevent gout, because it increases skin activity, which again reduces acidity and promotes elimination of uric acid; and the same skin activity, no doubt, explains why those who suffer from uric acid headache have less of it in summer than in winter. With rheuma-

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tism we stand on less firm ground, because uric acid has not been proved to be in excess in the blood in this disease; but I hope I shall be excused for believing, at least till careful investigation has proved the contrary, that with the help of the knowledge we now possess about the excretion of uric acid it may yet be found to be in excess in the blood in this disease.

The marked effect of salicylates in acute rheumatism seems to me a very strong point in favor of uric acid causation, and in favor of the disease being due to retention of uric acid by acids, the vicious circle being at once cut through by the salicylate, which permits its free excretion. There are, besides, important connections in the matter of family history, and in effects of drugs, meat, beer, weather, and exercise between gout and rheumatism which are not to be easily disposed of, except on the theory of a similar causation.

Why uric acid should produce in one patient gout, in another rheumatism, in a third headache, and in a fourth epilepsy, may depend to some extent on the time during which it is in excess in the blood, and the amount of such excess; but, beyond the uric acid, there are no doubt peculiarities in the structure and function of nerves or vessels in each individual which determine the point on which the poison shall act most forcibly, and so to some extent the result it produces; but, in all these diseases alike, such regulation of diet, exercise, clothing, and climate as shall prevent high acidity from bringing about continued retention and accumulation of uric acid will serve to keep off attacks, even though the other factors remain in operation.—*The British Medical Journal.*

PRELIMINARY NOTE UPON A NEW METHOD OF TREATING YELLOW FEVER.

BY GEO. M. STERNBERG,
Major and Surgeon United States Army.

In view of the recent announcenent that yellow fever has reappeared in Florida, and the possibility that it may soon prevail as an epidemic in that State, the writer has decided to report the favorable results recently attained in the treatment of the disease in Havana by a method proposed by him, although the number of cases is still comparatively small.

My recent researches in Havana have led me to think it very probable that in yellow fever, as in cholera, the specific micro-organism causing the disease is located in the alimentary canal. While this is not proved, it is demonstrated that, as a rule, no micro-organism capable of development in the culture-media usually employed by bacteriologists is present in the blood or tissues of those recently dead from yellow fever. This view naturally suggests intestinal antisepsis as a mode of treatment.

It is well known that in yellow fever the urine and the vomited matters are highly acid. I have also found the intestinal contents to have usually a more or less decided acid reaction. A microbe, therefore, capable of multiplying in the stomach and intestine in this disease must be able to grow in an acid medium. But aside from this theoretical reason for prescribing alkalies, the highly acid condition of the secretions furnishes an indication for such a treatment, and the writer has long desired an opportunity to see a thorough trial of a decidedly alkaline treatment.

These considerations induced me during a recent visit to Havana to propose the following formula:

R. Sodii bicarb. grammes x (gr. 150).
Hydrag. chlorid. corrosiv. centigrammes ii (3·10 gr).
Aquæ puræ, litre i (1 quart). M.
Sig.—50 grammes (about 1¾ oz.) every hour; to be given *ice cold*.

This treatment was adopted by Dr. Raphael Wiess, house physician at the Garcini Hospital, and I have just received from him a record of twelve cases treated by the director of the hospital, Dr. Francis Cabera, and himself.

The complete temperature charts sent to

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me by Dr. Weiss sustain the diagnosis in all of these cases, and this is confirmed by Dr. Daniel M. Burgess, United States sanitary inspector at Havana, who writes me:

"HAVANA, July 18, 1888.

"MY DEAR DR. STERNBERG: I send you by this mail Dr. Weiss's report of twelve cases treated by the alkaline and bichloride method. Although they were all Spaniards, and were not directly under my care, I had sufficient supervision of the cases to satisfy me that they were all genuine yellow fever. It will be seen that they all recovered, and I will add that every case so far treated at the Garcini by that method has recovered. While these twelve cases were being treated, and a little before, eight cases were treated in the same institution by other methods, and five of the eight died."

Dr. Weiss writes me that in some of the more severe cases he increased the amount of bichloride to five centigrammes (¾ gr.) per litre. He says:

"Administering to the sick the bichloride of mercury, according to your directions, the gastric phenomena are very much modified; the gastric sediments appear later, and in no case have they been entirely dark. In some cases, truly dangerous on account of the state of the patient, in a general sense, gastric sediments" (black vomit) "did not appear, nor even nausea. The pains in the stomach were not so severe."

In some of the cases Dr. Weiss added benzoate of sodium to the formula for its laxative effect, and administered daily two enæmas containing each a gramme (15 grs.) of the phenate of sodium.

Sherry wine and hypodermic injections of ether were given during the second stage, when the pulse was feeble and the condition of the patient seemed to call for a stimulant.

With reference to the urinary secretion, Dr. Weiss writes—

"The urine has always been abundant. In some cases the density lowered, but was compensated by a large quantity of urine. Albumen did not appear in some of the cases; in others the amount was small, and in others it reached two grammes to the litre. The albumen has always disappeared on the second or third day, and then the fever ceased."

Although Dr. Weiss has sent me the clinical records of only twelve cases, he says in his letter—

"I have dealt with thirteen sick from the beginning of the disease, and all have recovered. . . . Before using this new treatment, during the present season, we had eight cases which we treated from the first day by the old method" (mainly symptomatic), "and five of the number perished."

This mode of treatment will, of course, require a more extended trial before the results can be fairly compared with those obtained by other methods. I may remark, however, that in similar cases treated by the "expectant" method, the mortality rarely falls below 20 per cent., and in hospital practice is often 50 per cent., or even more.

Whether the favorable results are to be ascribed to the alkali, or to the antiseptic action of the bichloride, can only be determined by testing the two remedies separately; but I am very much disposed to ascribe the unusual absence of gastric disturbance, and the abundant secretion of urine noted, to the alkaline element of the treatment, and it is extremely doubtful whether the bichloride reaches the intestine in sufficient quantity to exercise any decided antiseptic effect in that portion of the alimentary canal. The bicarbonate should be free from carbonate of sodium, as the mercuric chloride is decomposed by this salt and by alkalies generally. It is possible that the biniodide might be substituted to advantage in the formula above given.

In some experiments made by the writer several years since to determine the comparative antisepetic value of the salts and oxides of mercury, the following results were obtained:

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	Active.	Failed.
Biniodide of mercury	1 to 20,000	1 to 40,000
Bichloride of mercury	1 to 15,000	1 to 20,000
Protiodide of mercury	1 to 10,000	1 to 20,000
Yellow oxide of mercury	1 to 1,000	1 to 2,000
Black oxide of mercury	1 to 500	1 to 1,000
Calomel		1 to 100
Blue mass		1 to 100

"In every case the antiseptic was carefully weighed and added to one hundred cubic centimetres of beef-peptone solution, or of veal broth. A similar quantity of the culture-fluid was put up as a *temoin* without the addition of the antiseptic. As the oxides and iodides of mercury are insoluble in water, the bottle was repeatedly shaken in order to dissolve in the albuminous culture-fluid as much of the antiseptic as possible. An undissolved remnant could, however, be recognized at the bottom of the bottle after this repeated shaking. Two drops of broken-down beef-stock were added to each bottle to cause speedy putrefaction of the culture-fluid in the absence of a sufficiently potent inhibition of the developing power of the bacteria of putrefaction. In every case in the comparative experiment the culture-fluid became clouded, and had a putrefactive odor at the end of twenty-four hours.

"The first column in our table shows the proportion in which the culture-fluid was preserved from any appearance of decomposition for at least a week, the duration of the experiment. In the proportion given in the second column a decided inhibiting power was shown, except in the case of calomel and blue mass, which, in the proportion given (1 to 100), gave no evidence of antiseptic power. The other salts and oxides in the list prevented decomposition for twenty-four hours in the proportion given in the second column; and it was not until the second day that the bacteria of putrefaction commenced to form a cloud at the upper surface of the fluid, which gradually extended until the fluid had entirely broken down, usually by the third or fourth day. The bottles containing the biniodide (1 to 20,000) and the bichloride (1 to 15,000) have now been standing in the laboratory for three weeks, and are as transparent and free from odor as the day they were put up."*

The bichloride, the biniodide, and the oxides of mercury exhibited a decided inhibitory—antiseptic—effect upon the development of the bacteria of putrefaction in the proportion given in the second column, and we may use these figures as a guide in our efforts to secure intestinal antisepsis by means of these agents; although it is, of course, very uncertain how much of the soluble mercuric salt introduced into the stomach reaches the intestine in an active form—probably very little. In the formula which I gave to the physicians of the Garcini Hospital the amount of bichloride prescribed is really only in the proportion of 1 to 50,000 parts of the solution; but I considered it advisable to commence the treatment with an amount that was entirely safe, and to increase the dose afterwards if it was found to be prudent and desirable to do so. Dr. Weiss has, in fact, increased the dose in several severe cases to five centigrammes per litre—1 to 20,000. As all of these cases recovered, we may infer that when largely diluted, as in this formula, and given in small quantities at short intervals, it may be safely administered in these doses; but, as already intimated, I am rather disposed to attribute the favorable course of the disease to the full alkaline treatment than to any antiseptic effect of the bichloride in the intestine. In the stomach, however, I should expect a decided antiseptic effect from the medicine as administered; and perhaps this is, after all, what is most needed.

JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

*From report of Committee on Disinfectants of the American Public Health Association, 1885.

WHAT KILLS THE CHILDREN.

Ignorance kills the children. Now and then accident lends a hand, as when some poor toddler tumbles into boiling water, or a weary, restless mother rolls

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upon her infant and stills its cries forever. But ignorance does the business generally, blind giant that he is, always ready to seize the pillars of everything and turn bright places of joy as dark as buried Babylon. Tradition clutches the hapless infant the moment it is born, and decrees that it shall be immersed in water. The prenatal environment has a temperature of about a hundred degrees. This cold world boasts of any temperature it pleases. That of the bath is also a movable feast. Under the circumstances, the custom of washing the new-born is not unlike, in effect, the refinement of cruelty that would grasp a man from his bed and thrust him ruthlessly into a snow-bank. The fact that childbirth is an exhausting process, even to the baby, is too often ignored. Time is required for necessary reaction. The little one needs repose as well as its mother, a good rest at the start to insure some health and strength for its future guerrilla warfare with life. If it were let alone, sleep would generally follow its preliminary outcries. But no; custom says the little pilgrim must be scrubbed, and scrubbed he is. He survives—as a general thing. But "How did my lamb get that dreadful cold and those bad eyes?" and "How he cries with colic!" It is possible to manage better, as, for instance, in the Maternity Department of the Woman's Hospital in Philadelphia. There the eyes of new-born babies are washed with an antiseptic solution at the earliest opportunity. When the child is entirely born, it is left quiet on the mother's bed until the expulsion of all appendages, which usually occurs within an hour. The infant is then carried away just as it is, well wrapped up, and let alone. After the mother has received proper attention, the child is cared for. One loose garment and a diaper are all it is burdened with in the way of clothes. Warmly covered, it is laid away in a little bed by itself, and neither washed nor dressed until twenty-four hours have elapsed, when it is carried to the baby's bath-room (which is properly heated), and there its toilet is performed for the first time. The physician in charge states that since this plan has been adopted the babies thrive to a far greater degree and cry less. This method is at once rational and natural, and would seem to need no defense.

The maternal physique has some subtle, indefinable influence over young children, a health-giving power not at present well understood. The new baby is still in a certain sense a part of its mother, although a separate unit. Its well-being requires close contact with her during the greater part of the twenty-four hours. A bed by itself is an injustice to helpless infancy. It is paterfamilias who should seek another resting place, not the new life as yet so frail and insecure. Only those who have tried this natural method can thoroughly appreciate its advantages and realize how admirably it insures the happiness of three persons. The child can be cared for during the night without exposure or any sudden chill. Always warmed and protected by a loving presence, the little one sleeps long and well. After the weaning period, the baby has his own bed as a matter of course. Until then, an undisputed half of the maternal couch is a necessity to the embryonic citizen, if he is to grow into that relative perfection of health and strength which nature has intended for him. The human mother is the only animal that puts away its young at night, probably because the right kind of reason has not yet taken the place of half-eradicated instinct. The hen gathers her brood under her wings; the mother bear forms herself into a sort of animate woolly nest about her cubs, just as the cat's body embraces her kittens. Our cousins of the lower orders may not be such bad examples to follow, after all. At any rate, why not give those "wonderfu' weans" the benefit of the doubt?

The slaughter of the innocents goes on in different ways. Emotional prodigality is a most efficient means of removing the

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joys of a household. "Died of too much grandfather, grandmother, uncle, and aunt" would be a fitting epitaph for many a bright child. Emotion is the most exhausting of all mental attributes. What children do, and how much, is of far less importance than the way in which they do it. The evils of premature mental activity are without doubt very great; but to prematurely and unduly excite emotional manifestations is tenfold more hurtful. In this regard there seems to be the densest ignorance. The fact that young children's only business in life is to develop slowly—to eat, sleep, and play in childlike fashion—is too often forgotten in the home circle. On the contrary, they are supposed to attend to their own work of growing and developing and afford fun for the family at the same time. Our tender little ones are made the play-things of the household—hugged, kissed, talked to, and made to talk, for the pleasure and gratification of the parents and friends. Their callow brains are overworked by exciting and intense emotion. What wonder they have big heads, little bodies, and hardly any digestion at all! Feebleness, asymmetry, excitability, premature arrest of growth, are some of the evils resulting from this continual tension selfishly imposed by thoughtless grown folk upon unresisting childhood. To what extent the influences under consideration can reach is, perhaps, known only to those who are in actual contact with large numbers of children and who have made the subject of very young Americans something of a study. * * * —*The New York Medical Journal.*

CLINICAL FEATURES IN THE HISTORY OF SEVERAL CASES OF EXTERNAL ANTHRAX (MALIGNANT PUSTULE) AMONG WOOL-SORTERS.

Under the care of Samuel Lodge, M. B., B. S., Dunelm.

CASE I.—J. W. M., æt. 26, an overlooker in the washing department for camel's hair, on August 2, 1887, consulted me for supposed barber's itch. On examining his right cheek I saw a black eschar about the size of a shilling surrounded by a raised red border, with a purplish, œdematous, and indurated areola. The base was thickened and indurated, and could be felt through the mouth to be considerably larger in extent than the black eschar. There was no fœtor. Slight glandular enlargement.

Previous History.—On July 29, whilst being shaved, his barber cut the top from an ordinary acne pustule. On his way next morning to work amongst the camel's hair, he once more pulled the top off the spot on his cheek. He remembered touching it several times during the morning whilst at work, as it was irritable. The same evening he felt aguish, and suffered from marked febrility. The sore had a dark red base, was angry looking, itched, and burned.

State on first Consultation.—Anxious look on face; skin rather dry. Temp. 100.5°. Tongue clean and moist. Pulse 90. Resp. 23. Patient was told the exact nature of the case, and its contagious power was explained. Pustule was dressed with my father's antiseptic vegetable silk, impregnated with boracic acid, and occasionally swabbed over with corrosive sublimate solution, 1–1000. Microscopically I detected the bacillus anthracis in the serum from the wound. Later I asked Dr. Hime, as Medical Officer of Health, to see him, with me, and he cultivated the bacilli most successfully.

On the 31st of October there was no trace of original lesion in cheek except healthy cicatrix.

CASE II.—Samuel G., 21, van mohair sorter. On Friday night a papule about the size of a pin's head appeared on right upper eyelid. The same evening papule became vesicular, and had a bluish areola.

Saturday morning.—Patient could hardly see, on account of œdema. Saw a chemist who told him it was erysipelas, and prescribed for him.

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Sunday morning.—Pustule larger, congestion increasing, cervical glandular enlargement. Characteristic black eschar on pustule. General symptoms much worse. Head, neck, mouth, and chest on same side all swollen.

Tuesday.—Could not see out of either eye, pustules on bùccal mucous membrane, saliva dribbled from mouth. Incisions made into congested tissues. Additional symptoms were slight cough and dyspnœa.

Wednesday morning.—Increasing glandular enlargement. Congestion much relieved by deep incision. In the evening, rigors, incessant vomiting, marked delirium, diarrhœa, with "meat washings" stools every ten minutes. Patient died next day.

Pustules in mouth seemed to be secondary pustules. General anthrax seemed to supervene, also complicated with intestinal anthrax (mycosis intestinalis), judging from "meat washings" stools.

CASE III.—Pustule commenced on eyebrow. Similar in character to Case II, and ended fatally.

CASE IV.—Arm accidentally injured whilst at work. Patient wore a cadaverous expression. Pulse at wrist imperceptible. Arm considerably enlarged (15 inches over biceps). From subcutaneous emphysema, due probably to decomposition of subcutaneous fat, the arm was dry and papery-like—a needle passed through skin as if into a hollow body. Cicatrix of recent wound dried up and scaly-looking. Temperature in mouth 95°. Suppression of urine. Collapsed but sensible, answering questions coherently. Supra-clavicular glandular enlargement.

Autopsy.—Nothing of importance beyond characteristic blueness of extremities (first described by my father in 1855).

CASE V.—Malignant pustule situated on the arm, similar in character to last, the whole limb rapidly swelling and losing heat. Man recovered finally, but with an impaired constitution.

CASE VI.—A revolving band stripped the tissues from the forearm of a young woman almost to the bone. After the wound filled with healthy granulations, a typical malignant pustule commenced on the raw edges and spread eccentrically, and before the wound was filled up the pustule had disappeared. The raw surface kept healthy all the time. It seemed worthy of notice first, that the disease never attacked the raw surface, but only spread eccentrically in the skin. Secondly, the spreading in the skin agrees with the ordinarily observed cases, and accounts for the frequency with which the diagnosis of erysipelas is at first made. The contrast between the infiltration of noma and malignant pustule is here shown to be very great.

CASE VII.—Condition of patient at first visit: Three large vesicles, not unlike herpes in character, but unlike it in distribution, as one pustule was situated on the top of the right shoulder, another over angle of left scapula, the remaining one midway between the other two. The gentleman who first saw the case remarked that "it was the queerest vesicle he had ever seen, and thought herpes resembled it most, but could not understand the vesicles being larger than a shilling, and why there should be such great œdema and constitutional symptoms." He further added that "the resemblance in the symptoms in this case to those in some cases of snake-poisoning in the Australian bush was very striking." The patient died in three days.—*Medical Press and Circular.*

EFFECTS OF MENTAL OVER-WORK.

A COMMON FORM OF ILLNESS WHICH IS GENERALLY DISREGARDED.

Some interesting though not novel observations on the symptoms of mental fatigue were discussed at a recent meeting of the Anthropological Society. The result of these investigations goes to prove that weariness of mind, the result of work,

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like other forms of exhaustion, is recognizable under the two different though related aspects of irritability and incapacity. Further careful inquiry into the same subject would probably show that here, as elsewhere, the former of these conditions is introductory to the latter, and is the natural sequel to that stage of apparently successful overaction which is seen when an organ still fully capable is unduly stimulated.

The observations referred to were culled from a series of reports by school-teachers, and included details of their own sensations as well as of the children under their care. The signs of mental irritability were apparent in sleeplessness and nervous laughter; of fatigue, in sleepiness and incapacity for task work. Lolling, yawning, and a languid manner told that the will was flagging. Headache suggested overstrain in study combined with defective ventilation, and perhaps a too sparing diet; while some curious facts bearing on the causation of color-blindness and somnambulism were also noted. Thus, in one case the blue-color perception was for a time obliterated, and the sufferer from this defect found herself painting ivy leaves a bright orange; while in another a student, having retired to rest on the eve of an examination, awoke at his desk to find that he had been busily engaged in drawing humorous cartoons relating to a former conversation. Here we have an instance of cerebral irritation due to overwork which suggests a somewhat close connection between dreaming and somnambulism, and affords a clue to the physiology of the latter condition.

Overwork, both mental and bodily, is at once the most general and the least regarded form of illness to which we are liable in the present age. Do what we may, it is next to impossible to escape from it; but there is, at all events, a certain satisfaction in being able to recognize its features. We must not forget, however, that it is also to a considerable extent a preventable evil, and it is certainly a matter for satisfaction that this fact is not ignored by the reforming party in the Legislature. Its treatment in individual cases requires chiefly that due attention be paid to the two great essentials of timely rest and wholesome diet. Work, however irksome, may, it is generally allowed, be undertaken on a liberal scale if only it be not too continuous, but is broken by timely and adequate intervals of rest. The value of a plain and liberal dietary is hardly less, and we may take it as a maxim for the times that, so long as appetite and sleep are unimpaired there is no dangerous degree of overwork, and, conversely, that a failure in either of these respects should be regarded as a warning signal, to which attention should be paid by relieving the strain of exertion.—*Lancet.*

PSYCHOLOGICAL LABORATORIES.

The study of psychology as an experimental science is likely to advance, considering that laboratories for research have been, or are now being, established in many of the Continental towns and in America. Among these we may mention Leipzig, Berlin, Bonn, and Göttingen; in America, at Johns Hopkins, Harvard, Pennsylvania, and Princeton; while at Cambridge we have the anthropological laboratory which Mr. Francis Galton has done so much to establish. Many phenomena concerning mental action are capable of being reproduced for the purposes of accurate study and comparison with the hope of attaining exact knowledge. Some of the most valuable results have been obtained in studying simple phenomena, as seen in children; but experiment is wanted as a means of keeping certain conditions constant, and for obtaining records of phenomena capable of objective examination and measurement. Dr. James McKeen Cattell, of the University of Pennsylvania, has given an account of the work done in the psychological laboratory of Leipzig in *Mind*, January, 1888.

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Experiments have been made as to the measurement of sensation, both by varying the pressure upon parts and by determining the variations in illumination that can be appreciated by the eye. Sound and light have both been used in investigations as to the relations between stimulus and sensation. Many researches have been undertaken to determine the duration of mental processes; there is no doubt that mental processes take up time, and that this time may be measured. It would be very interesting to learn whether, in the course of evolution in man, the physical processes which correspond to thinking have become shorter or longer, or have remained unchanged. There is no doubt that the interval between stimulus and response varies much in different persons. Dr. McKeen Cattell concludes by saying: "The results obtained in the Leipzig laboratory during the past seven years have been briefly noticed. They prove conclusively that it is possible to apply experimental methods to the study of mind. The positive results are, besides, not insignificant, and will compare favorably with what has been accomplished during the same period in many chemical, physical, and physiological laboratories. An increased interest is everywhere being taken in experimental psychology, and we may hope that we shall some day have as accurate and complete knowledge of mind as of the physical world." It is to be hoped that, in the arrangement of the Royal Colleges for providing laboratories in London, place will be found for the encouragement of research in the departments of physiological psychology and anthropometry, and that in a few years the reputation of the work in this department may be such as may partially remove the indebtedness of England to other countries. —*The British Medical Journal.*

LANOLIN AND ITS IMITATIONS.

German medical literature contains frequent testimonials from clinical observers of the extended uses of lanolin as an unguent basis in the treatment of skin diseases, the therapeutic application of inunction to the treatment of constitutional diseases, as an obstetric application in the treatment of wounds and cuts, and cosmetically in the prevention of sunburn and freckling, and even the "prevention of wrinkles." Professor Oscar Liebriech's most valuable and original addition to our storehouse of therapeutic resources is, however, subject to the usual drawback which attends the introduction of any novel and useful substance, by the occasional substitution of imperfect imitations and inferior products simulating lanolin, at least in title, which produce deleterious effects. Dr. G. Meyer, of Berlin, reports to the following effect in the *Deutsche Med. Wochenschr.*, No. 19, 1888: A man, aged 38, had a hard chancre in 1875, and was treated in the Charité Hospital, Berlin, and elsewhere for relapses, during the next five years. In June of last year he suffered from hoarseness and swelling of the testicles. Amongst other treatment, the following ointment was applied to the testicles: pot. iodid. 1 gramme; lanolin, 10 grammes. The word "lanolin" was written without any affix. Severe acute dermatitis of the scrotum followed, with great swelling, redness, and burning heat of the skin. The penis participated. The man could not walk about, and, therefore, left off work. The inflammation, he said, set in after the fourth infriction. The general health was not affected; the penis, as above said, shared in the inflammation, which affected both sides of the scrotum. Epididymitis was excluded accordingly, and suspicion rested on the ointment. More of this was ordered as before, for examination only, and it smelt "acid and rancid." The skin remained like thick leather for some time. An ointment of one part of potassium iodide in ten parts of lanolin puriss. (Liebreich) was then rubbed in by Dr. Meyer himself. The skin was distinctly thinner two days afterwards, without any trace of irritation by the ointment. The

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previous inflammation was due, there is no doubt, to the rancid lanolin used, for all sorts of lanolin, except Liebreich's, contain several fatty acids. The percentages of these in various samples of lanolin are given in the *Deutsche Med. Wochenschr.*, No. 28, 1886, as 33, 26, 17, 16, 16; in Jaffé and Darmstaedter's lanolin, 0.5 to 1.—*The British Medical Journal.*

THE VALUE OF DIAPHORESIS IN INFECTIOUS DISEASE.

A moist skin during the course of infectious and acute diseases has from a very early period in the history of medicine been regarded as a desirable symptom. For the purpose of showing the value of the *rôle* played by the skin in such cases Queiroco, of Genoa, has just published some interesting results of experiments made with sweat upon animals. It is, of course, a point upon which no difference of opinion exists, that the sweat is a potent means by which the materies morbi are eliminated from the organism. The chief cause of the diseases, in the form of toxic elements, ptomaines for example, are dissolved in the sweat, and so extracted from the body. The author collected some sweat from cases of variola, articular rheumatism, typhoid fever, etc., and injected it into various animals. The result of the experiments was that the animals in all cases died. Experimenting, however, with normal sweat taken from healthy men and injecting it into animals, under the same conditions, he found that nothing happened. Thus the value of the old Hippocratic injunction, which makes the administration of plenty of liquids an important element of treatment in acute diseases, is confirmed. It would be interesting to know what, if any, micro-organisms are contained in the sweat of patients suffering from infectious diseases, and whether the fatal results in the animals could be in any way attributed to the effects of microbic invasion through the injections of sweat.—*Medical Press and Circular.*

CASCARA SAGRADA IN RHEUMATISM.

Dr. Goodwin, of the United States Marine Hospital Service, has discovered that cascara sagrada possesses remarkable powers for the relief of rheumatism. Encouraged by the results accidentally obtained on his own person, he tried it on a number of patients suffering from well-marked rheumatic manifestations, most of whom had been treated with more or less unsuccess by means of the salicylates, iodides, etc. Within twenty-four hours he was surprised and gratified to find a marked improvement in every case. One particularly striking case was that of a Swedish soldier, who had been suffering intensely for three months, none of the usual remedies affording him more than transient relief. Fifteen-drop doses of the fluid extract of cascara sagrada three times a day produced a marked improvement in forty-eight hours, and by the seventh day he had so far recovered that he received permission to walk out. From that date he steadily improved and made a satisfactory recovery. In some cases it may advantageously be combined with salicylate of sodium. The action on the bowels was seldom excessive, and the laxative effect usually produced was a distinct advantage. Dr. Goodwin confesses himself unable to explain the action of the drug in relieving rheumatism, but this, after all, is not of much importance if only his conclusions bear the test of experience.—*Medical Press and Circular.*

THE AMALGAMATION OF DUBLIN MEDICAL SCHOOLS.

The scheme of amalgamation which we alluded to last week has been finally revised by the Special Committee of the Council of the College of Surgeons and has occupied the Council for a day's discussion. We understand that very satisfactory progress

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has been made with it, and that its promotors are saguine that it will shortly receive the *imprimatur* of the Fellows of the College and of the Lord Lieutenant, whose function it will be to approve the needful changes in the College by-laws. If the progress of the scheme is undisturbed, the Carmichael and Ledwich Schools will cease to exist as separate institutions, and will work in conjunction with the School of the College from and after next session, but it will not be possible to arrange for the accommodation of the whole of the students on the College premises, and therefore the Carmichael College will remain open for certain departments of study until such accommodation can be provided.—*Medical Press and Circular.*

FUGITIVE IODISM; ŒDEMA OF EYELIDS.

Dr. F. Hewkley, in the *British Medical Journal*, says, W. J. H., æt. 30, on May 7, complained of frontal neuralgic headache, which had varied in intensity during the preceding ten days. He could not bring to mind having had headache before, but had been, during several years, inconvenienced by an irritable catarrhal condition of his fauces and naso-pharynx. Having applied a chloroform preparation of aconite root with a camel-hair pencil horizontally to the forehead from side to side, a full inch above the eyebrows, I prescribed as follows: R. Liq. ferri iodidi, 1½ drachm; aq., 5½ ounces; ½ ounce ter. Soon after the second dose, the patient felt a severe cold had come upon him quite suddenly—sneezing, a very copious and steady flow of watery fluid from the left nostril, sufficient to saturate two handkerchiefs. This ceased in one hour as abruptly as it had occurred. Coincident with its cessation a puffiness of the eyelids on the corresponding side ensued; this increased, and on retiring the patient's lids were completely closed. He slept well, and the morning following, his eye presented the appearance of having been stung by an insect, as described by Dr. Tom Robinson. The left eyelids, both upper and lower, were equally tumid with a semi-transparent rosy fullness, which the patient said was less than on retiring the night before. There was neither subconjunctiva œdema nor any discharge from between the lids. The conjunctiva presented a diffuse pinkness. Over both cheeks, but nowhere else on the body, was an urticarial erythema, fainter on the left than on the right cheek. He felt well, his headache was gone. On May 10, the phenomena had completely vanished.

REMARKS.—Here is seen a person with a decided catarrhal dyscrasia suddenly attacked with fugitive œdema of the eyelids sequent upon a free catarrhal outpour from the nasal mucous membrane. So far, the symptoms being limited strictly to the one side lends weight to the idea that an extension of the same catarrhal process into the neighboring loose connective tissue, though this was not related by immediate continuity, had occurred. Another view may be taken—that the transient œdema of the lids was associated with an impediment in the course of the efferent lymphatic circulation occasioned by the turgidity of the nasal mucous membrane.

THE CURE OF CONGENITAL HERNIA AND HYDROCELE.

At the close of a lecture on this subject Professor L. G. Richelot draws the following conclusions:

1. In congenital inguinal hernias, as in all others, resection of the sac is one of the conditions of the radical cure.

2. Total resection of the inguinal sac is always possible, whether in kelotomy for strangulation or in radical cure made deliberately.

3. Resection of the vagino-peritoneal canal is always possible in congenital hernias without ectopia, as it is fixed at the external inguinal ring or sufficiently

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movable to descend. It may be made so as to preserve the testicle and close the vaginalis around it. It is a delicate operation, but has no great difficulties.

4. Resection of the vagino-peritoneal conduit, without hernia, is also easily done, and under the same conditions, when a reducible hydrocele enables the operator to recognize the congenital disposition. It closes the serous canal that may become a sac, and has the value of a preventive radical operation.

6. A benign operation, and without mutilation, that delivers a young man from a great infirmity, is one that should be recommended.—*L'Union Médicale*, No. 52, 1888.

THE SEMIOLOGICAL VALUE OF AMPULLARY DILATATIONS OF THE SMALL LINGUAL VESSELS.

Dr. Gillot, of Autun, after a careful study of this subject, comes to the conclusion that ampullary or aneurismal dilatations of the sublingual capillaries occur almost exclusively in arthritic subjects, and that if all arthritics do not present them, they that have them are arthritic. Arthritism causes thinning the walls of small vessels. Whenever blood-pressure is increased, from whatever cause, cardiac hypertrophy, plethora, obstacles to respiration, etc., these aneurismal dilatations are subjected to strong tension, which may cause rupture. [But how many cases of such rupture are on record.] Every person, says Gillot, that has ampullary dilatations of the tongue may be suspected of having miliary aneurisms of the brain; and the consequences of cerebral hæmorrhage from this cause are well-known. The aspect of these miliary tumors of the tongue, their increase in size, their more or less deep color, often reveal to the physician the increased cerebral vascular tension, and should put him on his guard against threatening apoplexy. From an analysis of several hundred cases of cerebral hæmorrhage, Gillot claims that coexisting ampullary dilatations of the tongue were more developed or more numerous on the side of the cerebral hæmorrhage, and on the opposite side to the paralysis.—*L'Union Médicale*, No. 66, 1888.

TREATMENT OF BURNS.

Nikolsky claims to have had excellent success in the treatment of burns of the second degree with fomentations of the following:

Tannin.
Alcohol (95) aa 4 grammes.
Rectified sulphuric ether, 30 grammes.

The dressings are repeated two or three times a day. After the ether evaporates there remains a fine pellicle of tannin that causes prompt sedation of the pain and inflammation. The cure takes place much more rapidly than under the employment of collodion and other remedies in common use. The first dressing should be preceded by an antiseptic washing of the affected parts. The bullæ are punctured to allow the serum to escape, and the denuded surfaces are then powdered over with iodoform in a thin layer, and then dressed with the ether-tannin.—*Journal de Médicine de Paris*, May 20, 1888.

BOOK REVIEWS AND NOTICES.

A PRACTICAL TEXT-BOOK OF THE DISEASES OF WOMEN. By ARTHUR H. V. LEWERS, M.D., Lond., M. R. C. P., London; Assistant Obstetric Physician to the London Hospital; Examiner in Midwifery and Diseases of Women to the Society of Apothecaries of London, etc. With illustrations. Philadelphia: P. Blakiston, Son & Co. 1888. Chicago: W. T. Keener.

Lewers' text-book possesses the merit of simplicity and brevity to an extent that casts scientific thoroughness and completeness quite in the shade. The chapter on "Rupture of the Perineum" is a marvel of condensation. The whole subject, exclusive of treatment, is included within the limits of two pages, two-thirds of which space is devoted to central rupture. The only operations hinted at are the plain triangular ones; the only suture materials

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mentioned are silk, fishing-gut and catgut, and the only indications given for operating are incontinence of fæces, or flatus, and the disability "on account of prolapse of the vagina, or uterus, for the patient to wear a vaginal pessary such as the ordinary India rubber ring." The chapter on "Diseases of the Fallopian Tubes" is very interesting and instructive, yet the following quotation is all that is given of the symptoms: "The patient complains of pains across the lower part of the abdomen, and it may, or may not, be worse on one side. She has dysmenorrhœa, and the regularity of the catamenia is disturbed. If the dysmenorrhœa dates from a particular confinement, or abortion, or if a history of gonorrhœa can be obtained, the probability of the tubes being diseased is strengthened." Recurrent attacks of pelvic peritonitis upon the slightest provocation; frequent alterations of patient's condition from one of comfort to misery; occasional sudden vaginal discharges followed often by relief; dragging along or reappearance of menses after their expected or temporary cessation, and attacks of rectal tenesmus or irritation might have received some notice as occasionally or frequently depending upon disease of the tubes.

Rapid dilatation by Hegar's dilators, is rightly given preference over more gradual methods, yet the existence of bladed dilators is not thought worthy of notice. Vulliet's method of dilatation by progressive plugging is not mentioned.

Version is described as a rotation of the whole uterus "round an imaginary transverse axis." Where this axis is, whether it is stationary or movable, and, if movable, whether its position changes the form of version, is left for the student to conjecture. Lateral versions and flexions are consistently ignored. As to pessaries we read, "For all ordinary cases where the use of a vaginal pessary is indicated, either the ring pessary made of watch spring covered with India rubber, or Hodge's pessary, will be found to meet every requirement." We do not object to the recommendation of these typical forms of pessaries, but rather to the dogmatic statement that they will "in all ordinary cases meet every requirement." In fact, the chief fault of the book seems to consist less in the inadequacy of the teaching than in the representation of the imperfect teaching as meeting every requirement.

Alexander's operation is rejected as dangerous and valueless, and is not described; nor is hysterectomy (either abdominal or vaginal), while the supravaginal amputation, which is recommended for all cases of carcinoma of the cervix, is given a full and satisfactory description.

In short, the book is neither a complete, even though brief, scientific exposition of gynæcology, nor is it a book of the primary class, in which the more simple and fundamental facts and truths of gynæcology are fully and adequately described for the student. It is neither a guide for the student nor practitioner, but is rather adapted to the use of the oculist, laryngologist, or other specialist who desires to have a superficial notion of gynæcology.

Many good things are in the book which testify to the originality and ability of the author, but it is unfortunate that he has endeavored in his book to make the study of gynæcology too easy, and has taken so little space for the undertaking.

ATLAS OF VENEREAL AND SKIN DISEASES; Comprising Original Illustrations and Selections from the Plates of Professor M. KAPOSI, of Vienna, Dr. J. HUTCHINSON, of London, etc., with Original text by PRINCE A. MORROW, A. M., M. D., etc. New York: Wm. Wood & Co. 1888. Fasciculi Nos. 3, 4, 5, and 6.

The new numbers of this valuable atlas, to which attention has already been called in these pages, are fully equal in point of merit to those which have preceded. The text is written with special care, and fully explains the several features of the diseases portrayed. The illustrations, both new and old, are of the highest value. And it should be said of the old that many of them appeared first in editions which are no longer accessible to the mass of American students and practitioners.

Fig. IV of plate XXVII is a fine example of the best work here shown. It illustrates an extensive cicatricial patch on the elbow of the patient, whose tuberculo-ulcerative syphiloderm is equally well displayed in the third figure on the same sheet. In the former the group of characteristic tubercles, the white, glistening, and corded cicatrix, even yet partly covered with the crusts furnished by the ulcerative process resulting in the scar, the anatomical curves of the elbow, and the flesh-tints of the arm are delicately and admirably reproduced. As we examine it, with the satisfaction which is always awakened by the study of faithful reproductions of nature, the suggestion is made that one day both scientist and artist will combine to give us a portrait of the skin where the several diseases capable of destroying its integrity have had their sway. An atlas giving us the several pictures, not of the scars of one or a few diseases, but of those of all diseases capable of leaving scars in the skin, would be a fitting complement of those now accessible.

The present work is to be commended from every point of view, and the publishers are certainly to be congratulated on the artistic merit of the plates.

FOURTEENTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH OF THE STATE OF MICHIGAN FOR THE YEAR ENDING SEPTEMBER 30, 1886. Pp. L and 341.

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Lansing, Mich.: Thorp & Godfrey, State Printers. 1888.

The excellent work which is being done in Michigan in the way of recording and reporting meteorological conditions, and contrasting them with the prevalence of various diseases, becomes increasingly impressive and valuable with the appearance of each new volume of these reports.

As is customary, the first part of this volume consists of a record of the official acts and meetings of the State Board of Health, together with reports of investigations of matters throughout the State which come under its jurisdiction.

The part of the volume which possesses the most interest for the profession at large is the contribution of the Secretary of the Board upon the causation of pneumonia. This is upon pages 246 to 324, inclusive. The number of tables and diagrams which accompany the article is very large, and the article itself is a very valuable and important contribution to the subject which it discusses.

THE APPLIED ANATOMY OF THE NERVOUS SYSTEM. A Study of this Portion of the Human Body from a Standpoint of its General Interest and Practical Utility in Diagnosis, Designed for use as a Text-Book and Work of Reference. By AMBROSE L. RANNEY, A. M., M. D. Second edition. Re-written, enlarged, and profusely illustrated. Pp. XXXV and 791. New York: D. Appleton & Company. 1888. Chicago: W. T. Keener.

He would be indeed a carping critic who failed to find warm words of praise for this book. The author was already widely and favorably known, and this his latest publication will bring him increased honor. It is well printed on good paper, and the illustrations are very numerous and excellent. Of course most of them are reproductions of the work of other men, but those which are original with the author are a great addition to the value of the book.

The general arrangement of the subject-matter is very satisfactory, and the treatment of the special topics apparently considers all of the available knowledge. The author's style is clear and attractive, and his explanations are exceptionally easy to understand. E. W.

THE YEAR-BOOK OF TREATMENT FOR 1887. A Critical Review for Practitioners of Medicine and Surgery. By many Contributors. Philadelphia: Lea Brothers & Co. 1888. Chicago: A. C. McClurg & Co.

This little manual is a valuable compilation from the domestic and foreign medical journals of the more important advances made in the treatment of disease, with a review by some most excellent authorities.

Each department of medicine and surgery has been fully and concisely treated.

Full reference has been given to every article quoted, which makes it of e pecial value to those who do not have access to the files of many medical journals. F. B.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE. For the use of physicians and students. By JAMES TYSON, M. D., Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania; one of the Physicians to the Philadelphia Hospital; Fellow of the College of Physicians of Philadelphia, etc. Sixth edition. Revised and corrected. With a colored plate and wood engravings. 8vo. Pp. 253. Philadelphia: P. Blakiston, Son & Co. 1888.

That this little manual has reached the sixth edition is abundant evidence of its usefulness. It now appears again fully revised, embracing what is new and valuable pertaining to the subject, and omitting from its pages whatever has proved to be useless. The general plan and merit of the book are so well known to the profession that to outline it would be a formal introduction of an old friend.

BOOKS RECEIVED.

Henry's Posological Tables.

Transactions of the New York State Medical Association. 1887.

Medical Publications Harvard Medical School. 1887.

Fourteenth Annual Report of the Secretary of the State Board of Health of Michigan.

A System of Obstetrics by American Authors. Vol. I.

Annual of the Universal Medical Sciences. Issue of 1888. Charles E. Sajons, M. D., editor.

Practical Electro-Therapeutics. By William F. Hutchinson, M. D.

Manual for Hospital Nurses. By E. J. Domville, M. D.

Theine in the Treatment of Neuralgia. By Thomas J. Mays, M. D.

A Guide to the Practical Examination of the Urine. Sixth edition. By James Tyson, M. D.

The Applied Anatomy of the Nervous System. By Ambrose L. Ranney, A. M., M. D.

Reference Hand-Book of the Medical Sciences. Vol. VI. Edited by A. H. Buck, M. D.

A Practical Text-Book on the Diseases of Women.

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By Arthur H. N. Lewers, M. D., Lond., M. R. C. P. Lond.

Anæsthetics; Their Use and Administration. By D. W. Burton, M. D., B. S.

A Clinical Atlas of Venereal and Skin Diseases. Parts I and II. By Robert W. Taylor, A. M., M. D.

Comparative Studies of Mammalian Blood. By Henry F. Formad, B. M., M. D.

The National Formulary of Unofficinal Preparations.

Atlas of Venereal and Skin Diseases. Fasciculi V and VI. By P. A. Morrow, A. M., M. D.

Intra-Cranial Tumors. By Byrom Bramwell, M. D., F. R. C. P. E., F. R. S. E.

PAMPHLETS RECEIVED.

Water: Its Impurities Gathered from the Air and Earth. By C. W. Moore, M. D.

The Orthopedic Treatment of Paralysis of the Anterior Muscles of the Thigh. By A. B. Judson, M. D.

On Exercise for Prevention and Cure of Deformities. By A. H. P. Leuf, M. D.

Vesico-Vaginal Fistula. By Reuben A. Vance, M. D.

Effects of Food Preservatives on the Action of Diastase, Pancreatic Extract, and Pepsin. By Henry Leffman, M. D., and Wm. Beam, M. A.

The Intra-Uterine Stem in the Treatment of Flexions. By A. Reeves Jackson, A. M., M. D.

The Causation of Pneumonia. By Henry B. Baker, M. D.

Die Entzündung der Peripheren Nerven, deren Pathologie und Behandlung. By E. Leyden.

Some Remarks on Opening the Mastoid Process. By Frank Allport, M. D.

An Operation for Simple Forms of Eutropium. By Frank Allport, M. D.

Rectal Insufflation of Hydrogen Gas. By N. Senn, M. D., Ph. D.

An Experimental Contribution to Intestinal Surgery. By N. Senn, M. D., Ph. D.

Fracture of the Sternum, with Dislocation of the Fragments. By B. J. D. Irwin, M. D.

Some Retrospective and Prospective Thoughts on Surgery. By Donald McLean, M. D.

Cocaine Dosage and Cocaine Addiction. By J. B. Mattison, M. D.

Tornado Circular No. 1. Signal Service, War Department.

Camp Hygiene. Pennsylvania State Board of Health.

Transactions of the Massachusetts Medico-Legal Society, Vol. I. No. 10.

Proceedings of the State Sanitary Convention of Pennsylvania. May 12 to 14, 1886.

Report of Proceedings of the Illinois State Board of Health. Quarterly Meeting April 19, 20, 1888.

Annual Report of the Department for the Insane of the Pennsylvania Hospital.

Report of the Department of Health of the City of Chicago, for the year 1887.

MISCELLANY.

THE NATIONAL FORMULARY.—A new "National Formulary" has been prepared by a committee of one from each State Pharmaceutical Association, appointed by the American Pharmaceutical Association in 1885. The purpose of the "Formulary" is to present an "authoritative standard" for the preparation of the floating formulas that have not heretofore been thought to possess sufficient merit to justify their recognition by the U. S. Pharmacopœia, and also of such new preparations as have acquired character and use since the last revision of the U. S. Pharmacopœia. *The Drugman* says: Every pharmacist is familiar with the trouble and annoyance which a want of uniformity in these migrating formulas occasions. Local variations causing slight difference in color, odor, or taste, have caused many a pharmacist to be suspected of having made a mistake. With a view of preventing as far as possible these annoyances, and for the more important purpose of establishing something like uniformity in the therapeutic strength and properties of these circulating formulas, this work was undertaken, and we presume it is fair to say that the book, whether good or bad, fairly represents the best American pharmaceutic talent at present. We have always believed that the work would retard rather than advance the principal purpose sought to be attained—uniformity. We have already a formulary prepared by a committee of physicians and pharmacists that has been universally received as authoritative, and no intelligent druggist considers it at all admissible to permit his officinal prepa-

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rations to vary in strength or medicinal virtues from this recognized standard. It will certainly produce a great deal of confusion and mischief to have two standards, the pharmacist feeling authorized to follow his individual judgment in deciding which he shall obey in the preparation of medicinal compounds. The "National Formulary" will fill a want, and be very convenient until the next revision of the U. S. Pharmacopœia, when the trouble will begin. Many of the new formulas in the "National Formulary" will be adopted by the U. S. Pharmacopœia, with such modifications as the intervening experience may seem to render advisable. Some of these modifications will prove to be improvements, others will not, and where differences exist some pharmacists will prefer U. S. Pharmacopœia formulas and processes, and others the "National Formulary." We will thus have two standards, which is equivalent to no standard, and the object sought to be attained will be placed farther off. We can not have two standards. If they are identical, one answers every purpose; if they differ, the result will be damaging to every phase of medical progress. What we want is uniformity in officinal preparations—absolute uniformity as nearly as possible—and this can only be attained by following implicitly a single standard, and no departures from this guide should be considered proper or honorable except in isolated cases when proper explanations can be made. In the absence of uniformity the practitioner has no criterion by which to scientifically estimate the physiological and therapeutic effects and value of medicinal agents, and until this point shall have been attained medicine can never be a positive science. If the improved processes and floating formulas increase so fast that an official or semi-official collection is rendered necessary oftener than every ten years, let the U. S. Pharmacopœia be revised every five years. If none of the processes and formulas of the "National Formulary" could ever get in the U. S. Pharmacopœia, with modifications affecting their physical appearance or therapeutic strength and properties, there might be no objection to its existence on general principles; but this can not be prevented."

SULFONAL. — Regarding this hypnotic, discovered in 1886, Professor A. Kast, of Freiburg, says in the *Berliner Klinische Wochenschrift*, after trying it in sixty separate clinical cases, "Sulfonal deserves a prominent position among medicinal agents, not only as a hypnotic for producing temporary insensibility, but for its property of assisting the normal periodical want for sleep, and producing such where wanting; and furthermore because it produces no harmful effect on the elements of the blood; that it does not attack and impair the tissures of the alimentary channels; and that even in large doses it calls forth no dangerous disarrangement of the function of the heart or the vascular system."

Dr. Edward C. Huse, of Rockford, writes to say that in cases in which he has used salol (salicylate of phenol), in affections of the alimentary canal, as in cholera morbus and diarrhœa of children, the result has been so satisfactory that he regards it as a germicide of great value. On theoretical grounds he thinks it would be of much service in the treatment of cholera. He states that he was himself greatly benefited by taking it when suffering with inflammatory rheumatism, indicating usefulness in other conditions resulting from derangement of the digestive apparatus.

Messrs. Lehn & Fink, in "Notes on New Remedies," say: Gum Arabic, expensive and adulterated as it is now, can be advantageously replaced by casein in making emulsions. Cadet de Cassicourt was the first to direct attention to this substitute, and experiments have proved the value of his discovery. Emulsions prepared with casein remain permanent without separa-

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tion of the oil, and have a pleasant taste, making the administering more palatable for the patient.

TOPICAL TREATMENT OF VARICES.—Robert gives the following formula:

Chloride of sodium.....1 gramme.
Dissolve in
Distilled water.....q. s.
Shake and add
Lanolin.....15 grammes.
Olive oil.....5 "

For external use. Rub this over the region of the varicose veins three times a day.—*Revue de Therap. generale et Thermale.*

DIURETIC ACTION OF BEER.—R. Mori asserts that the diuretic action of beer corresponds only to that of a volume of liquid equal to one-third of the beer taken, and that more abundant diuresis is caused by wine. The diuretic action of beer and of alcoholic drinks should be attributed to the alcohol.—*Chemiker Zeitung*, 1888, XII, 32.

ANNOUNCEMENTS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

CIRCULAR NO. III.

WSHINGTON, D. C., July, 1888.

The Committee of Arrangements takes pleasure in announcing to the members and invited guests of the special societies taking part in the Congress that the arrangements are sufficiently advanced to assure the success of the First Triennial Session of the Congress of American Physicians and Surgeons, which will be held in the city of Washington during the 18th, 19th, and 20th of September next.

A number of distinguished physicians and surgeons have signified their acceptance of the invitation to attend, among whom may be named Sir Spencer Wells, Sir Andrew Clark, Sir William McCormac, Drs. W. O. Priestley, William Ord, and Grainger Stewart; Mr. Lawson Tait, Mr. Victor Horsley, Mr. Thomas Bryant, Mr. Thomas Annandale; Professors Ferrier, Esmarch, and Gerhardt; Drs. Rafael Lavista, of Mexico; J. L. Reverdin, of Geneva; O. W. Holmes and H. I. Bowditch, of Boston; Joseph Leidy, of Philadelphia; W. Kingston and Eccles, of Canada.

The preliminary programmes of the participating societies have been published. It is hoped that the classified and final programmes will be forwarded without further delay. Several are already in possession of the committee. As soon as all are received, the final programme of the Congress will be printed and distributed.

Places of meeting for the Congress and each of the societies have been secured, conveniently located, so that members may interchange attendance without annoyance.

The meetings of the Congress will be held during the evenings, beginning at 8 o'clock p. m.; on the evenings of the 18th and 19th the meetings will be held in the main hall of the Grand Army Building, 1412 and 1414 Pennsylvania Avenue, and on the last (Thursday evening) in the hall of the National Museum. During this evening the Army Medical Museum and Library Building, alongside of the Museum Building, will be lighted and opened for the inspection of the members and invited guests. The meetings of the societies will be held during the day, according to the programme each may respectively provide. The sessions will be open to the profession.

On Monday evening, September 17, a dinner will be given by members of the Congress to the guests of the participating societies. Invitations to this dinner will be sent only to the specially invited guests who have indicated their acceptance. The contributing members will receive cards of admission. It will be limited exclu-

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sively to members of the Congress and invited guests.

An informal collation will be served at Willard's Hotel on Tuesday evening, after the adjournment of the meeting of the Congress, to the guests and those members who may choose to attend. A similar entertainment will be served in the National Museum Building on Thursday night, after the final adjournment of the Congress.

Guests are requested to notify the chairman immediately after their arrival in Washington, giving their address, and stating whether they have ladies with them. Special arrangements will be made for the entertainment of the wives and daughters of the guests.

Hotel accommodations are ample, and conveniently located to the places of meeting.

The secretaries of the special societies are requested to forward to the chairman the names and addresses of their foreign guests.

Members of the Congress and their guests are expected to register. A parlor in Willard's Hotel will be provided for that purpose, from which the mail of the members and guests will be distributed, and at which the city residence of each member or guest can be ascertained.

All communications should be addressed to the chairman of the committee,

SAMUEL C. BUSEY, M. D.,
1545 *I St. N. W., Washington City,*
Chairman Committee of Arrangements.

THE American Orthopedic Association will meet in Washington, D. C., on September 18, 19, and 20.

THE next meeting of the American Rhinological Association will be held in Cincinnati, Ohio, in September.

THE fifth annual meeting of the American Climatological Association will be held in Washington, D. C., September 18, 19, and 20, 1888.

THE annual meeting of the Southern Surgical and Gynæcological Association will be held at Birmingham, Alabama, on September 11, 12, and 13, 1888.

THE twelfth annual meeting of the American Dermatological Association will be held at Willard's Hotel, Washington, D. C., September 18, 19, and 20.

AT the annual meeting of the American Otological Society, held at the Pequot House, New London, Connecticut, on Tuesday, July 17, 1888, the Society voted to adjourn till 11 a. m. of Tuesday, September 18, 1888, at the Arlington Hotel, Washington, D. C.

AT the annual meeting of the AMERICAN OPHTHALMOLOGICAL SOCIETY, held at the Pequot House, New London, Connecticut, on Wednesday, July 18, 1888, the Society voted to adjourn till 11 a. m. of Wednesday, September 19, 1888, at the Arlington Hotel, Washington, D. C., to take part in the Congress of American Physicians and Surgeons.

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ANDREAS VESALIUS.

"Hippocrates has been styled the Father of Physic; Haller, the Father of Physiology; and Vesalius may fairly be considered as the Father of Human Anatomy."

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* Read ... Chemical Society, September 17

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The Medical Journal and Examiner.

VOLUME LVII. OCTOBER, 1888. NUMBER 4.

ORIGINAL COMMUNICATIONS.

SOME PRACTICAL DEDUCTIONS DRAWN FROM THE KNOWN FUNCTIONS OF THE LIVER.*

BY GEORGE W. WEBSTER, M. D.,
Lecturer on Physiology in Chicago Medical College.

It would seem like a truism to assert that a correct knowledge of physiology must be the basis of all rational therapeutics, and it is only necessary to recall the fact that prior to the delivery of the "Croonian Lectures," by the late Charles Murchison, in 1874, our knowledge of the functions of the liver was in a somewhat chaotic state, which the late Dr. Fothergill referred to as "A sort of Central Africa in the map of the organism."

While much was known before that date, and much more was surmised, clinical observations and theories had not been verified by chemistry and physiology.

But when chemistry aided physiologists to secure scientific accuracy we began to have some precise knowledge of a most important subject.

To Claude Bernard, and others of his time, we owe most of what we were taught upon this subject up to the time of his death.

If it is conceded that the most important object of physiological research is to assist in the prevention of, and recovery from, disease, the importance of the subject of this paper can not be overestimated, since in the elaboration of the food for the nutrition of the tissues, in the storing up of food in the tissues and in the liver, and of eliminating those substances deleterious to the individual, the liver is the most important glandular organ in the body.

In view of the importance of the subject, and with the hope of eliciting opinions, suggestions, and discussion which may add something to our knowledge of it, I venture to offer some thoughts in regard to it.

To treat it fully would require much time, and I shall therefore call attention to the more important functions of the liver and present some deductions drawn from them, speaking of the minor functions first.

In order to form a correct estimate of the importance of the functions of the liver, it is necessary to keep in mind the relations which the liver sustains to the digestive tract on the one hand, and to the circulatory system on the other.

We must call to mind the fact that as the portal blood stream comes from the stomach and intestinal canal, all of the products of digestion, except the fats, are poured into it—all the fluids, drugs, medicines, and everything ingested and absorbable. In this condition it comes to the liver and passes through it, and for what purpose? In the present state of our

* Read before the Chicago Medical Society, September 17, 1888.

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knowledge this question can not be fully answered.

Some of the functions of the liver are quite obvious and well understood; others are not, and they are therefore matters of doubt and discussion. Progress has been made, good work has been done, much light has been thrown on an obscure subject, and the physician has been able to apply the teachings of physiology in the prevention and treatment of disease. I will now attempt to answer the question, "For what purpose does the blood pass through the liver?" The blood as it comes to the liver contains all those substances, except fats, which are necessary for the nourishment, growth, and development of the body, together with many substances of no further use in the economy, and also some which are undoubtedly injurious or poisonous, if allowed to accumulate in the blood. Under normal conditions the latter are excreted, and some of the former are changed and stored up; others are further elaborated that they may be utilized in the general constructive metabolism of the organism. When we realize how far the chemist and physicist are from grasping and interpreting all of the phenomena of inorganic matter, we cannot wonder that the intricate, difficult problems, the phenomena presented to us by living organisms, should not be well understood and our deductions which are based upon them rational. Nevertheless, we are in possession of knowledge which is of value to us if it is properly applied.

I will first state briefly the functions of the liver, the action of the bile, the glycogenic function and its elaborating action on albuminoids, and then attempt to make some practical deductions based upon a knowledge of these facts. The liver secretes bile, which is formed by the cells of the liver. It passes through the bile ducts to the gall bladder and thence into the duodenum as required in the process of digestion. During embryonic life the liver is concerned in the production of red-blood corpuscles, and in adult life it has something to do with their destruction, possibly through the action of glycogen, as glycogen possesses the power of breaking up and rapidly destroying them.

Lactic acid is formed in the liver. Deleterious substances are arrested and eliminated, and ptomaines are thought to be eliminated in this way.

The liver produces glycogen from the materials furnished it by the blood and stores it up, and again reconverts it into sugar, allowing it to pass out to meet the needs of the system.

The glycogen passes out by way of the blood vessels. We thus have the products of the activity of the liver passing out by two distinct channels, which is an exception to the general rule and our conception of a secreting organ.

The liver is the chief, and perhaps the only, organ concerned in the destructive metamorphosis of albuminoids, and the formation of urea and other nitrogenous products, which are subsequently eliminated by the kidneys, these chemical changes contributing in a marked manner to the production of heat. It also assists in the elaboration of albuminoids, fitting them for taking part in the metabolism of the tissues.

The bile is partly an excretion and partly a secretion, and after it passes into the duodenum it takes part in the process of digestion. It emulsifies fats, moistens the walls of the intestinal canal, and facilitates the passage of fats into the lacteals, since it has a certain relation to watery solutions as well as to fats. It contains a ferment which converts starch and glycogen into sugar. It excites contractions of the muscular walls of the intestines, and thus promotes absorption, and its presence increases the vital activity of the intestinal epithelium in the absorption of fats. It retards putrefactive changes in the intestinal canal, and by some it is claimed to be an antiseptic. It prevents the action of gastric juice in artificial digestion, but

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recent experiments seem to prove that in natural digestion in the stomach it has no such effect. Even where a fistula was formed and all the bile allowed to flow into the stomach, it did not affect the first period of digestion and did not induce vomiting as it is quite generally supposed to do.

Among the most important constituents of the bile are glycoholic and taurocholic acid, both being nitrogenous in origin and both formed in the liver by its cells from materials furnished by the blood.

That they are formed in the liver is shown by the fact that after extirpation of that organ there is no accumulation of them in the blood.

That they are nitrogenous in origin, or derived from the nitrogenous elements of the food, is shown both by their chemical composition and by the fact that they are notably increased in amount by the administration of nitrogenous food. Cholesterin is one of the principal excretory products and is kept in solution by the bile salts.

We understand by the term glycogenic function of the liver, its power to form glycogen from the materials supplied to it by the blood, and, under normal conditions, to store it up and to reconvert it into sugar to meet the requirements of the body.

Its origin is largely from the carbohydrates of the food taken, which is shown by the fact that it is increased in quantity after the ingestion of a meal rich in those substances.

It can also be formed from other classes of foods, and it is formed in minute quantities even during starvation.

When the amount of sugar in the blood exceeds five to one part in 1,000 it is eliminated by the kidneys, and the condition is known as glycosuria. When due only to excess in the blood, as after a hearty meal of carbohydrates, it is of no consequence; but when due to disease of the liver, which prevents it from converting the sugar of the food into glycogen and storing it up as such, it becomes one of the most serious and fatal of diseases.

That diabetes is a disease of the liver is shown by the fact that in an advanced stage of the disease the glycogenic function of the liver is almost abolished, and the patient becomes rapidly emaciated, because the tissues are unfed, since the sugar all slips away through the kidneys.

This is also proven, since a part of the liver has been removed from a man almost dead of diabetes, and it was found to contain almost no glycogen.

The percentage of sugar in the blood, and, therefore, the amount eliminated by the kidneys and taken away from the tissues, is increased by any condition which retards the circulation in the liver, thus allowing the ferment a longer time to act on the glycogen. This is what occurs when we puncture the lower part of the floor of the fourth ventricle, which is the hepatic vaso-motor centre, and puncture of it paralyzes the hepatic vessels. Many drugs act in the same way, notably curara, morphia, chloral, mercury, and alcohol.

Glycosuria may also be caused by chloroform narcosis, possibly by tending to cause paralysis of vaso-motor centres generally. Stimulation of the sciatic nerve may also cause it reflexly, and this may account for the fact that many people suffering from sciatica have sugar in their urine.

The increased amount of sugar in the urine may be caused by:

(1) Increased formation of sugar by the liver beyond the needs of the body.

(2) Decreased oxidation of sugar by the tissues, allowing it to accumulate in the blood.

(3) It may, as in diabetes, pass through the liver without being acted upon by the liver cells, and is, therefore, not stored up, but is eliminated by the kidneys.

The first condition may be due to a diseased condition of the liver cells or to a derangement of the circulation caused by disease of the nerves, nerve centres, or circulatory system. The third condition

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is evidently one of disease of the liver cells.

Glycosuria when present may be set aside in either of two ways: section of the splanchnic nerves, which renders the liver anæmic ; by the administration of glycerine, the latter substance seemingly acting on the cells of the liver, since when glycerine is administered, puncture of the floor of the fourth ventricle either does not cause diabetes, or only to a slight extent.

That the liver has an important function to perform in the oxidation and in the elaboration of albuminoids there can be no doubt.

All of the albuminoid food ingested must be converted into peptones in the alimentary canal before it can be absorbed, as albumen cannot be absorbed as such. From the time they enter the portal circulation until they emerge from the liver they again undergo further elaboration to fit them for aliment for the tissues, and to remove from them poisonous properties.

There are two kinds of proteids in the body: Those which form nitrogenous tissue or organic albumen, and those which circulate in the blood as a ready supply for the nutritive demands of the tissues, and are known as circulating albumen, or serum albumen. The latter form 3 to 4 per cent. of the blood. According to Voight, only 1 per cent. of the organic albumen is transferred in the 24 hours, while 70 per cent. of the serum albumen is transferred in the same period of time.

If all of these processes go on in a physiological manner, the albuminoids of the food take their part in the metabolism of the body and are oxidized, and the end product, urea, is finally excreted by the kidneys.

While these processes are going on in a normal manner and albuminoids are not in excess, all is well, but when they are in excess, or when they cannot be properly handled by the liver, what occurs?

Professor Albertoni has shown, according to Dr. Brunton and quoted by Dr. Fothergill, that peptones, if introduced into the general circulation, have the power to destroy the coagulability of the blood, depress and slow the heart's action, arrest the functions of the kidneys, and to cause convulsions and death.

Now, it appears from the above evidence that peptones may be poisonous, and that even though our patient have a perfect digestion as far as the stomach and the intestinal canal are concerned, if the trouble be in the liver and the peptones are not acted upon by it, we may have the injurious effects of the peptones. At the same time the tissues are unfed, the peptones are not elaborated and are drained away by the kidneys, and the individual suffers accordingly.

Again, part may pass away in this manner and the remainder undergo a retrograde metamorphosis, being changed to leucin, tyrosin, and uric acid, and thus the liability to disease of the kidneys is engendered by the elimination of waste materials, the result of this sub-oxidative process.

Again, if these waste products are not eliminated, we may have an accumulation of them in the blood, with the conditions of lithæmia, gout, nervous prostration, or even the typhoid condition.

In most forms of indigestion we are in the habit of prescribing pepsin, and various artificial digestive ferments, which are good enough when properly used; but when the fault lies, as it often does, with the liver, then we have not gone far enough.

The peptones may be formed and even absorbed, but if not further elaborated they are not only useless but may be, as has been shown, positively injurious. In this connection, Dr. Brunton says "children should not play with edge tools."

We often prescribe pepsin when we ought, instead, to stop the administration of albuminous food and do something to aid the liver.

In the metabolism of albuminoids we have the origin of many maladies, and the

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better we keep this in our minds the more successful will be our treatment.

We recognize the action of the liver in dealing with albuminoids, and we know now that urea is formed in the liver from the nitrogenous foods, and not in the kidneys, and that the appearance of albumen in the urine is a derangement of the liver primarily, and that the elimination of these substances may, and does, cause disease of the kidneys.

This has been well and forcibly stated by Professor Geo. S. Johnson: "Renal degeneration is a consequence of long continued elimination of waste products of faulty digestion through the kidneys."

Bright's disease is a condition of waste-laden blood, blood overcharged with nitrogenized waste, not waste representing the oxidation of the tissues, but a sub-oxidation of nitrogenous elements of food, and it matters not whether the starting point was injury to the kidneys by the attempt to excrete this mass of waste material, or whether it was due to some primary disease of the kidney cells, as in scarlatina. The treatment is the same. Begin at the source of the difficulty and stop the administration of nitrogenous food.

If "physiological rest" means anything, and is of value anywhere, it is just here; and rest for the liver and kidneys is the only way to enable them to regain lost power and to restore disordered function.

In conclusion, then, I would say, in icterus, avoid fats, as they are not absorbed on account of absence of the bile in the alimentary canal.

Where patients have inherited an inefficient liver, where they have gout, lithæmia, biliousness, an excess of bile acids, most diseases of the skin, or Bright's disease, avoid nitrogenous foods.

If we have glycosuria or diabetes, we must avoid sugars and all food which produces them.

I would like to ask the members of the society whether we can have an efficient liver as far as its glycogenic function is concerned, and yet inefficient in its elaboration of albuminoids? Do we possess drugs capable of assisting or stimulating one, without influencing the other?

1922 INDIANA AVENUE.

THE PRIMARY PHYSIOLOGICAL PURPOSE OF THE MEMBRANA TYMPANI.*

BY S. O. RICHEY, M. D.
WASHINGTON, D.C.

In the development of anatomical structure, special organs, or parts of organs, come into existence as change of environment, or preparation for change of environment, demands them, for the perpetuation of individual existence. Aquatic animals have some peculiarity in various organs which fits them for the medium in which they live, but these organs are *un*fitted for life in the air. Land animals by certain other peculiarities of structure are *un*fitted for existence under water. Amphibia, by organic structure and therefore organic function, are qualified for both varieties of life. The young of amphibians, spawned in water, have branchiæ, the breathing apparatus of fish, but, with one or two exceptions, adults have lungs instead, the branchiæ giving origin to other needful appendages. Fishes, living always in the water, have no eyelids. Many of them have movable folds, initial upper and lower lids, while in some sharks there is a third fold, forming a nictitating membrane. Most commonly the integument continues immediately into the cornea. In reptiles and birds there is an upper and a lower movable eyelid *and* a nictitating membrane. In some lizards and in serpents, the eyelids are an annular fold, which becomes a pellucid, or transparent, membrane in front of the eye *protecting the eye from the external medium* (Gegenbaur, Comparative Anat-

* Read in the Otological Section of the American Congress of Physicians and Surgeons, Washington, September, 1888.

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omy, p. 532). The lachrymal gland appears first in amphibia and reptiles. In reptiles, birds, and some mammals the Harderian gland, the secretion of which is not exactly like that of the lachrymal gland, opens under the nictitating membrane, or the pellucid continuation of integument. These glands are alike in reptiles and birds. In amphibia, even the efferent duct is foreshadowed by an epithelial development, forming a canal to carry off the secretions of the gland.*

The first rudiment of an internal ear is an involution of the integument into a small sac, and occurs among the lower fishes. The crayfish has a simple auditory arrangement, consisting of an auditory sac, or involution of the integument, with fluid contents, a nerve, whose filaments enter auditory hairs, which project into the fluid contents of the sac; no middle or external ear exists. The lamprey possesses two semi-circular canals, and a sacculated vestibule as an auditory organ. Crocodilia have external ear openings closed by a flap of the integument, and this is the earliest suggestion of an outer or drum membrane which I can find in the history of the development of animal life. The ears of birds resemble those of crocodiles. All amphibia have a fenestra ovalis with a cartilaginous, or osseous, columelliform stapes, the expanded proximal end of which is fixed to the membrane of the fenestra (Huxley). Many, if not all, batrachia possess a fenestra rotunda; some have no tympanic cavity or membrane, though tympanic cavities exist in others, communicating with the throat, and tympanic membranes exist to which the stapes is attached. The tympanic membrane in the aglossa is a cartilaginous expansion of the columella. Except the frog, most amphibia have no tympanic membrane. The fenestra *ovalis* only may be found, which is connected with the exteriorly situated membrana tympani in the frog by three auditory ossicula. In reptiles and birds there is one columella. The auditory structures are alike in the lowest mammals and birds; they are similar in man and the higher mammals.

To sum up, the eye, the breathing apparatus, and the ear are more superficially placed in the lower forms of animal life, inhabiting water. As they approach higher forms of life and change their environment they adopt certain changes in structure better adapted to their exposure. The eye is protected, in some instances, from the desiccating influence of the atmosphere by a continuation of the integument, that part of which covering the eye becoming transparent; a tear-gland is developed, supplying the eye with moisture under this covering. As this structure varies to that of two lids, which, by separating, increase the exposure of the eye, the secretion of tears becomes more than ever before necessary, and the gland becomes more highly developed, to supply the more rapid evaporation of moisture. The nictitating membrane in the amphibia answers the double purpose of protection from the irritating effect of impure water upon eyes accustomed to the lighter medium—air; and from the irritation arising from the rapid evaporation caused by the air.

The breathing apparatus of aquatic animals, the branchiæ, being superficially placed, are, for the same reasons, unsuited to amphibious and land animals. The lungs are centrally situated; air, to reach them, must pass over a considerable extent of moist membrane, and is thus materially modified. Is it not most rational that for a similar purpose the auditory apparatus is fixed farther from the surface, and similarly protected? The denizen of

* Naturally here arises a question in regard to the heredity of the *hyperopic* eye, which is the common form in the young of the human race. In water, the refractive power of which is greater than of air, the refraction of the eye needs to be less than in the human being. This suggestion is fairly indicated by a comparison between the states of refraction of the eyes in savages and in civilized races; in the refraction of the young and the adults of civilized races; and in the tendency to *increase* of refraction by heredity and other causes among the more highly civilized, and hence older races.

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the sea needs no conducting apparatus better than the element in which he moves, as the power of conduction of sound, inherent in water, is less only than that of solids. Hence, an auditory sac, for the perception of sound, is all that is necessary, and we find him so supplied. The sac is kept in a condition of proper pliability by the water.

This leads us to a purpose of this paper —the important function of the membrana tympani in man.

The delicacy and pliability of the membrana secondaria must be preserved. It is therefore deeply situated, the external air reaching it only after passing over the mucous lining of the nares, pharynx, and Eustachian tubes, and becoming so saturated with moisture and modified in temperature, as not to subtract moisture from the delicate tissues of the auditory apparatus and lessen their pliability. It is the chief purpose of the membrana tympani to protect the tympanic cavity from the access of unmodified air in its direction. The whole structure of the conducting apparatus subservient to the delicacy and pliability of the membrana secondaria, at the same time aiding, and not repressing, the effect of the sound-waves upon the labyrinthine fluid. A perforation of the membrana tympani little, if at all, affects *immediately* the function of the organ. In time, direct exposure to the air causes gradual change in the structures of the cavity, and therefore impaired function. The smaller the perforation the more gradual the influence, but *any* opening must be similar in its effect upon the structures of the cavity to that of an opening into any other joint, for this is, to all intents, a large joint. In Stricker's Physiology, p. 969, we read: "The articulating surfaces of the ossicula resemble other true joints—they have capsules and a layer of hyaline cartilage on the articulating surface." * * * "The ossicula in adults are covered by mucous membrane, and a very thin periosteum." Besides, there are other tissues in this cavity to whose proper function moisture is necessary, and to which the action of unmodified air must prove deleterious—muscles and membranes. Though the articulations of the ossicula must be impaired in their movements by the chilling and desiccating effects of the air reaching them so directly, this would not express itself in impaired hearing, so long as the membrana secondaria is not stiffened, or excluded from the direct impact of sound-waves by closure of the perforation in the membrana tympani. What otologist has not seen cases in which, with an apparently normal condition of the middle-ear structures, decided increase of impaired hearing would follow a cicatricial closure of such perforation, to improve when sufficient time had elapsed to enable the tissues to become pliable from the natural secretion of the lining membrane? When the lining membrane is disabled by disease from producing this necessary moisture, the impairment of hearing is likely to persist. We will do well to remember that the tympanic cavity is much in the nature of a *serous* cavity, subject to the same maladies as a joint deprived of its capsula, when the drum membrane is removed by disease or otherwise, or when the cavity is exposed by a persistent perforation of the membrane, though not quite so intolerant as a joint. In amphibia the labyrinth is relatively smaller than in fishes; smallest in the mammalia. Thus the nearer to full protection from the direct action of the air, the more developed the tympanic membrane and the deeper seated the labyrinth, the smaller it is, and the less *fluid* it will contain. What is the relation between this fact and the processes of exosmosis from the labyrinth of the fluid contained by it, and evaporation of this fluid? In oto-sclerosis, or when perforation of the membrane exists, may not profound, almost total, deafness be due, in part, to exosmosis and evaporation of the fluid contents of the labyrinth, through an Eustachian tube of enlarged calibre, limiting motion of the perceptive elements by diminution

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of the fluid in which they float, as well as by anchylosis of the ossicula, or other morbid changes of the middle-ear structures?

We find in Gegenbauer's Comparative Anatomy (p. 527), after his discussion of the labyrinth: "Other parts are gradually added as accessory organs to the auditory organ, although primarily having no relation to it." By "accessory organs" he indicates the development of the bony tympanic cavity from the first branchial cleft; the involution of the pharyngeal mucous membrane forming the Eustachian tube; the involution of the integument, forming the external meatus; the formation, at the points of overlapping of these canals, of the drum membrane; these two tissues, with the *membrana propria, developed from the connective tissue lying between,** making up the tympanic membrane.

Evidently the development of these structures *subsequent* to the existence of the perceptive organ, and *exterior* to it, was with a purpose other than sport. When the simplicity with which nature usually works is borne in mind, we can not believe it was for the purpose of merely making the organ more complex. Can we be certain that the existence of a transmitting mechanism improves the perception? A temporary opening of the tympanic membrane, without other tympanic structural change, does not noticeably impair hearing.

In view of the otherwise guarded position of the labyrinth, is it not most rational to suppose the tympanic membrane to exist, also, for that purpose; especially, with the history of the contemporary development of the eye and its appendages, and the lungs with their more central location and appendages, and the protection which this implies?

This theory of the primary purpose of the tympanic membrane opens up a vast field of aural therapeutics for consideration. In reading aural therapeutics, one must be often impressed with the frequency of ad captandum methods, and the sad experiences and failures in manipulating this obscure organ. We see the immediate effect of the air douche; what is the remote result of its frequent repetition? What was the rationale of the endeavor to maintain an opening in the tympanic membrane in "progressive deafness," when by proper management the Eustachian tube could be kept patulous? Why has so much attention been exhausted upon the tympanic membrane, when its changed appearance is so manifestly due to alterations in the structures behind it? The philosophy of surgical violence to this delicate organ, unless in case of destructive disease, is questionable. Nature is wise, and her effort, so persistent, to heal a drum membrane, whether a perforation is the result of surgical violence or of disease, would indicate some other object in the existence of the membrane than the transmission of sound-waves. If this were not so, why should an opening in the membrane, designed by the surgeon, close, regardless of attempts by tents, eyelets, etc., to keep it open?

My impressions of the advisability of an imperforate membrane are so strong that I have never made an opening in it, except to evacuate fluid from the cavity. On the other hand, for more than ten years it has been my systematic practice to endeavor to close such openings. In case of chronic suppuration of the cavity, if the drum membrane is not restored, the discharge will recur at intervals. In no case in which the drum membrane has been restored under my observation have I learned of a recurrence of the suppuration. Such a result pre-supposes the destruction of the pyogenic membrane and all germinal matter, but it also suggests some other purpose for the existence of the tympanic membrane than its participation in the transmission of sound-waves to the internal ear.

* Hunt, Trans. Internat. Otol. Cong., 1876, pp. 104-112.

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CONCLUSIONS.

(1) The primary purpose of the tympanic membrane is that of protection of the tympanic cavity from the evaporating influence of the air; to prevent the *parching* and *stiffening* of the membrana secondaria, the joints of the ossicula, the tendons of the tympanic muscles, and to prevent loss of the labyrinthian fluid by evaporation.

(2) It, being necessary for the protection of the cavity, is modified into part of a transmitting mechanism by the existence of the ossicula and their attachments—a secondary physiological purpose.

(3) A permanent opening of the membrane may, under given circumstances, temporarily improve the function of hearing, but is harmful to the ultimate condition of the organ.

(4) The tendency of the membrane to heal is an effort on the part of nature to preserve the function of hearing from the effects of disease or ill-advised surgical interference.

A NEW METHOD OF FEEDING IN CASES OF INTUBATION OF THE LARYNX BY POSITION, HEAD DOWNWARD, ON AN INCLINED PLANE.*

BY W. E. CASSELBERRY, M. D.,

Professor of Materia Medica and Therapeutics and of Laryngology and Rhinology in the Chicago Medical College, Medical Department of the Northwestern University.

The operation of intubation of the larynx, for the relief of diphtheritic croup and other forms of laryngeal stenosis, has become so familiar to all that it is unnecessary to review it, even in brief. We therefore proceed at once to consider the subject-proper of this report, which is the subsequent feeding of the patient. This is the most serious difficulty pertaining to the after-treatment. The tube has been inserted, the dyspnœa is relieved, and the child, previously much exhausted by its struggle for breath, usually rests and sleeps quietly for a time. All goes well for six hours or so, when comes the question of how to give nourishment.

It is manifest that, with the action of the epiglottis impaired by the open tube in position, fluids and even semi-solids in process of deglutition will run through the tube into the trachea and thence into the lungs. Pulmonary inflammation, especially recognized by the Germans as *schluck-pneumonie*, is thus excited, and this, under the circumstances, is nearly always fatal. Not that the entrance of food material into the lungs is the sole cause of pneumonia occurring in the course of diphtheritic laryngitis, for this complication frequently arises by simple extension of the diphtheritic inflammation downward, and occurs, at times, after tracheotomy, when deglutition is unimpaired, but it is an additional exciting factor and one which is capable of originating pneumonia in the absence of other causes.

It has been sought to obviate the trouble with the administration of liquids, by substituting semi-solids and ice in lieu of water, but these do not suffice. It is said, give the patients ice, wrapped in a cloth, to suck, and they will obtain sufficient water to supply the demands of the body, and this would seem to be true, but it is not, for they will cry piteously for water after sucking ice for hours.

The constant cry of water! water! is often so distressing as to cause both the friends of the patient and the surgeon to regret having selected this operation in preference to tracheotomy. The patient has fever and constant thirst, and even in sleep and in delirium will mutter and cry for water. The nasal feeding-tube was introduced to meet this necessity. A soft rubber catheter, which is attached to a Davidson syringe or to a fountain apparatus, is passed through the nostril into the stomach, and through it water, milk, and

* Read before the Chicago Medical Society, September 8, 18 .

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other liquids can be rapidly introduced. It usually works well in the beginning before the child has learned what it is, but after the first time or two there is always an exhausting struggle, and one must also work very quickly to pump sufficient liquid into the stomach before the child will vomit tube and all, from the irritation of its presence in the fauces. Moreover, it is practically impossible to introduce the tube often enough to satisfy the desire for drink. So this method, although useful, is insufficient.

The artificial rubber epiglottis proved a failure. To further the solution of the problem Dr. Waxham devised the metal epiglottis tube, which is fitted at its top with a thin metal lid—the epiglottis, which, by means of a fine gold spring, is maintained in an upright position, except when the natural epiglottis pushes it down in process of swallowing. This tube works properly only when it is in exact position; if it becomes somewhat turned on its axis, or if it is small enough to sink a trifle low, leakage into the tube will ensue, through failure of the natural epiglottis to approximate accurately the tube and its metal lid. I feel constrained, also, while much admiring the ingeniousness of its mechanism, to advise against the use of the metal epiglottis tube, except, possibly, by the most skillful hands, because of the serious complication which the lid presents to the introduction of the extractor for withdrawal of the tube.

In June, 1888, through the courtesy of Dr. Frank Cary, I performed the operation of intubation of the larynx in a case of diphtheritic croup. We encountered the difficulties which I have enumerated, and which I had so frequently experienced before. The child was given ice, and still there was an incessant cry for water. The nasal feeding-tube was used, with the usual partial degree of success only. We were much distressed about the case, and in thinking of some means to administer liquid to the child, the thought occurred to me, Is there nothing in *position* that will help us? Answered at once by a second thought, Why yes! Stand the child on its head and let it drink. Certainly, by means of muscular action it could swallow upward through the œsophagus, just as one does when leaning far over to drink from a spring, while, in this position, the liquid could not gravitate upward through the tube. Naturally the idea followed that a modification of the position would suffice, one with the body inclined, head downward, at such an angle as to prevent water by gravitation, aided by any slight propulsive force given it in pharyngeal deglutition, from trickling through the tube. On going to the house, I met Dr. Cary and told him that I had determined to stand the child on its head and let it drink, when he remarked that the same thought had occurred to him; that he had even mentioned it that morning to another physician, who had laughed at the idea, but that he meant to suggest it to me. We directed the nurse to hold the child in her arms, on its back, with its legs tilted upward and its head hanging downward over her arm, so as to incline the body, neck, and tube at a considerable angle. In this position it would suck through a rubber tube from a glass, and swallow without the slightest difficulty all the liquid it wanted.

The matter seems so simple that we marvel that it had not been thought of previously. Several thousand cases have now been treated by intubation, and in all the necessity for a method such as this must have been apparent. Communication was held with Dr. F. E. Waxham, well known in connection with intubation, who said he had never heard of the method, and that he would try it. He has since done so in several cases, and he is enthusiastic over its success; says it is the next thing to the discovery of the operation itself. Dr. Cary communicated with Dr. O'Dwyer, who had heard nothing of it and seemed to ridicule the idea of the practicability of the method. Danger of

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congestion of the brain would occur to everyone, but it is not realized in practice.

The first case died from extension of membrane below the tube, but died having demonstrated the utility of this plan of feeding.

The second case in which I tried the method was one in the last extremity of diphtheritic croup, and seen through the courtesy of Dr. Frank Billings. A request for an hour's delay to send for apparatus was met by Dr. Billings' reply that the child would certainly then be dead. A *metal epiglottis tube* was inserted at once, and a good case thus presented to test the efficacy of the lid alone. In the upright position, with the epiglottis tube *in situ*, the patient could not swallow water or milk without coughing, indicating entrance into the trachea. In the inclined-plane position, with the head hanging downward, it took any quantity of liquid without the slightest difficulty. That child recovered.

The third case, left temporarily in my care by Dr. Waxham, was one of laryngeal growth, in which a tube had been inserted to relieve the dyspnœa. It also was wearing the epiglottis tube. It could swallow, but only with difficulty, and Dr. Waxham had already introduced the inclined-plane method, which was used with delight by the child, and much to the relief of the parents. It continued to work successfully under my observation as long as the tube was worn.

Regarding the exact position; the angle has varied in different cases, but from 45° to 90° seems necessary to obtain the best results. The child is held on its back in the arms of the nurse, the legs elevated, and the head left to hang over the arm. Then it may take the mouth of the feeding-bottle, suck through a tube from a glass or feed from a spoon. The only difficulty is encountered when the child is again placed in the upright position, which posture it must not be permitted to regain until it has been made to swallow three or four times after the vessel of liquid has been taken from its mouth, in order to swallow all the fluid which has gravitated into the pharynx and naso-pharynx. After they have learned this they will readily swallow several times, so as to force the liquid remaining in the throat into the stomach before the upright position is again taken, and then there is no trouble. The patient can be inclined without inconvenience for a minute or more, although much less than this only is necessary.

There is no danger of the tube slipping out unless one of too small size has been inserted, when it would become a fortunate accident, permitting the selection of a proper size for re-introduction.

70 Monroe Street.

EDITORIAL.

SURGERY OF THE BRAIN.

With the long-established operation of trephining in cases of injury to the brain, and the recent advances in thoracic and abdominal surgery, it seemed as if the fields open to surgery had been about all cultivated, but with the report of Macewen, made at the last meeting of the British Medical Association in Glasgow, in August, and the more recent report in the Congress of Physicians and Surgeons in Washington, last month, of the work of Mills and Weir and Horsley and others, it seems established that it is no longer necessary to stop with trephining the skull; that the brain itself may now be invaded in some cases not only with safety, but with surprising advantage. Whether the lovers of notoriety will be as reckless hereafter in brain surgery as they seem to have become in abdominal surgery remains to be seen. With some, evident desire for notoriety seems so irresistible that in all probability the near future must witness the passage beyond a line of safety into the wide domain of uncertainty and risk, and sometimes to the detriment of the patient.

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If laparotomy, to verify diagnosis, be justifiable, will not some reckless or injudicious diagnostician want to verify a diagnosis of compression of the brain, and feel more free to trephine the skull, only to find that his supposed case of compression proved to be but the stupefaction produced by alcohol? It seems to be as difficult as ever to avoid excessive conservatism on the one hand and reckless surgery on the other. Now that prudent surgeons have shown that surgery may advance somewhat beyond what were supposed to be its limits of safety, the doors have been opened for the imprudent ones. How soon shall the reports of the first victims be looked for? Scylla may be avoided, but let not Charybdis claim the escaped as victims.

THE OUTBREAK OF YELLOW FEVER.

The outbreak of yellow fever in Florida has yet given but little indication of abatement. The lateness of the season, at its beginning, gave some hope that the reappearance of the disease might not be attended by such distress as characterized its occurrence on some former occasions, but that hope has not been realized, and the suffering, distress and demoralization have been great. Whilst there has been no general epidemic of it, yet the disease has not been confined even to the State of Florida.

Aside from the fatality and the suffering which have resulted from the disease, and the monetary loss which attends the interruption of commerce, three important facts have been made apparent by the recurrence of the disease this season: First, that the unsanitary conditions of many parts of our Southern States remain as in former years, notwithstanding the great advance in sanitary science in the last few years, and that those conditions, when accompanied by high thermometric and low barometric states, are favorable for the spread of the disease. Second, that so far the National quarantine laws have been inadequate, and have failed to prevent the importation of infected persons or property. Third, that notwithstanding the liberal provision made by the Government for investigation regarding the cause of the disease, no practical results of value have been attained, and that our ideas of its pathology and therapeutics are little, if any, in advance of what they were a quarter of a century ago.

If the disaster of this year should result in securing better sanitation in future in the Gulf States, and greater security for the inhabitants of them, the lesson of this year, calamitous as it has been, will not be without some compensating aspect, and some basis for hope for future immunity.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

The first of what is contemplated as a triennial congress of physicians and surgeons, to be held in Washington, occurred in that city on September 17, 18, and 19. In accordance with the announcement previously made, the congress was composed of most of the National societies of the various special departments of the medical profession, which held separate sessions of those societies during the day, and met in general congress during the evening. The attendance, whilst not very large, was fairly representative of the better element of the medical profession of our country, and a number of prominent physicians and surgeons from Europe were present, and participated in the work of the congress, and of the various societies.

The scientific work, whilst it was not all of equal merit, was, both in the congress and in the societies, of such a character as to be a fair index of the most advanced ideas of medical and surgical science of the day.

So many societies being in session at the same time made it an exceptionally diffi-

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cult occasion for securing accurate reports of the work done in the different societies, but from the report of the representative of the *Journal and Examiner*, and from those of some of the weekly journals, we are enabled to give in this issue an epitome of the work of the congress, and of societies composing the congress, and the by-laws which are to govern the next congress.

Whilst this one adds one more to the multiplicity of medical organizations in this country, it will have an advantage over all of the others in the fact that it is to occur but once in three years. If some of the other organizations should not call their members together more frequently than every three years, it might prove a boon to the medical profession, even if there should prove to be fewer offices to be sought.

SOCIETY REPORTS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

FIRST DAY—Morning Session.

The First Tri-ennial Meeting. Held in Washington, D. C., on September 18, 19, and 20.

The meeting for organization and to receive the report of the Executive Committee was held on September 18.

It was called to order by Professor WILLIAM PEPPER, of Philadelphia, as Chairman of the Executive Committee, who made a report of the work of that committee.

Dr. JOHN S. BILLINGS, of the United States Army, President of the Congress, then took the chair and responded in a brief address.

Dr. SAMUEL C. BUSEY, of Washington, Chairman of the Committee of Arrangements, welcomed the Congress, and dwelt upon the advantages which that city offers as a place of meeting for scientific societies.

The following are the by-laws adopted:

1. This organization shall be known as the Congress of American Physicians and Surgeons.

2. It shall be composed of national associations for the promotion of medical and allied sciences.

3. It shall hold its sessions tri-ennially in the city of Washington, D. C.

4. The officers of the Congress shall be a president, vice-president, a secretary, a treasurer, and an executive committee.

5. The president shall be elected by the executive committee, of which he shall ex officio be a member. He shall preside at the sessions of the Congress. He shall deliver an address.

6. The presidents of the participating societies shall be ex-officio the vice-presidents of the Congress.

7. The secretary and treasurer shall be elected by the executive committee. They shall be ex-officio members of the executive committee.

8. The executive committee shall be composed of one member from each participating society; and said member shall be elected by the various societies at the next annual meeting subsequent to the Congress. It shall be charged with all duties pertaining to the organization of and preparation for the ensuing Congress, including the election of all officers, and of a committee of arrangements. It shall superintend the publication of the transactions of the Congress.

9. The expenses of the Congress shall be divided between the participating societies in proportion to their membership.

10. The admission of new associations to participation in the Congress shall be by unanimous vote of the executive committee.

FIRST DAY—Evening Session.

Professor REGINALD H. FITZ, of Boston, read a paper on "The Treatment of Intestinal Obstruction," followed by one on the same subject by Professor N. SENN, of Milwaukee.

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The subject of this paper was the diagnosis and medical treatment of the acute internal, mechanical varieties of intestinal obstruction. The only causes recognized were strangulation from adhesions, vitelline remains, peritoneal slits, pockets, and rings; intussusception, twists and knots, abnormal contents, strictures, and tumors. The evidence presented resulted from an analysis of 295 cases collected from medical literature since 1880.

Professor SENN first directed attention to irrigation of the stomach as practiced by Kussmaul. He said the mechanical effects of such a measure were limited to he segment of intestine below the ileo-cæcal valve. Experiment and clinical experience united in demonstrating the fact that the ileo-cæcal valve is impermeable to fluids. Why should we use fluid in attempting the mechanical correction of a mechanical cause below or above the ileo-cæcal valve? Again, all efforts at overcoming the ileo-cæcal valve by rectal injections result in serious injury to the distended colon. Why, said he, should we not for diagnostic, and more particularly for therapeutic, purposes, resort to the lightest, the most compressible, substance known—hydrogen gas, perfectly harmless, non-toxic, non-irritant? Experiment has shown by means of a manometer that a pressure of one-fourth of a pound to two pounds to the square inch is adequate to force hydrogen gas from anus to mouth; consequently the alimentary canal is permeable to hydrogen inflations. This means of investigation would show that it requires a pressure of from eight to twelve pounds to produce a palpable injury to any of the coats of the intestines; but when fluids are forced beyond the ileo-cæcal valve the surgeon invariably finds on post-mortem examination longitudinal rents in the serous coat. When the hydrogen gas is forced from anus to mouth no tangible injury has been produced anywhere.

Enterotomy, so frequently practiced in the past, he hoped had become obsolete. He meant Nelaton's operation. It is true, distinguished surgeons of to-day favor enterotomy in cases of acute intestinal obstruction in all instances where they are unable to ascertain the seat and character of the obstruction. They believe that, for the time being, an outlet for the accumulating intestinal contents places the intestinal canal in a favorable condition for subsequent radical measures.

Colotomy is indicated in all cases of intestinal obstruction below the ileo-cæcal region, where the obstruction has been caused by conditions beyond radical measures, or the general condition of the patient does not warrant the most serious operation of abdominal section.

Lumbar colotomy is an obsolete operation—in fact, scarcely any surgeon will attempt to make an extra peritoneal colotomy, in these days of safe abdominal operations. In cases, for instance, of cicatricial contraction, of harmless obstruction, unattended by indications of gangrene or perforation, the surgeon can safely make the obstruction harmless, and at the same time more efficient by resorting to enterostomy. Instead of spending an hour or an hour and a half in the process of suturing, as practiced in Europe, the surgeon can by a simple device unite the bowel above and below the seat of obstruction by approximation with perforated decalcified bone plates, more especially in cases of inoperable obstruction, where carcinoma and sarcoma have gone beyond their legitimate field and beyond the surgeon's reach.

DISCUSSION.

The PRESIDENT called upon Professor William Pepper, of Philadelphia, to open the discussion, but he declined in favor of Mr. Arthur Edward Durham, of London, England.

Mr. DURHAM said he desired, at the outset, to express the pleasure he felt in coming here amongst his American confrères and meeting with such a cordial reception.

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The subject of intestinal obstruction was not altogether strange to him. There is no class of cases more dangerous, more serious, and which more urgently call for prompt, skillful, surgical treatment than cases of intestinal obstruction. He could most cordially agree with Dr. Senn that a surgical operation should be performed as soon as the diagnosis was made; but it was exceedingly difficult to make a diagnosis in such cases. In fact, he knew of no class of cases in which the diagnosis was more difficult, and he would venture to go a step farther, and say he had seen cases from time to time in which the surgeon was justified in operating before the diagnosis was made—in other words, to operate in order to establish an accurate diagnosis. The difficulty lies in knowing what the cause of the obstruction is, and locating its seat.

With regard to the observations made by Dr. Senn, and his suggestions as to treatment, he came to America to learn and confessed that he had learned a great deal in many places, and in many ways. Insufflation with hydrogen gas was something new to him. He would like, therefore, to ask Dr. Senn what would happen in case the patient was blown up. He supposed Dr. Senn would call it a case of "blow up" then. He could not see why hydrogen gas on account of its particular lightness should be better for insufflation than ordinary air. This he had yet to learn.

Turning to the treatment. The first thing is to determine, if possible, the seat of the obstruction. In cases of acute intestinal obstruction in which it is evident, or which we have reason to believe, that the obstruction exists in the small intestine, he believes the proper treatment to pursue, when the symptoms are severe and urgent, even though an absolute diagnosis is not made, is to open the abdomen, search for the cause, and relieve it as best we can. On the other hand, when the indications are that the obstruction is in the large rather than in the small intestine, there is not the same degree of urgency, at any rate in a very large proportion of cases, and the procedure to be adopted must depend upon the seat and cause of the obstruction. In this connection he would venture without the slightest degree of hesitation to take issue with Dr. Senn. He (Senn) stated that lumbar colotomy is an obsolete operation. Now, he would beg to say it is not obsolete; it is an operation that is performed constantly day by day in Europe. He would endeavor to do the operation in any case in which he had occasion to do so. He had dealt with cases in which he had not done the operation, and for which he had a lasting regret that he did not do so; therefore, he would unhesitatingly say that the operation of lumbar colotomy is not obsolete. Had time permitted he could quote any number of cases in which after its performance the intestinal obstruction had been relieved, the colotomy wound healed, the patient gone about and doing well.

Dr. WILLIAM MILLER ORD, of London, England, said he supposed he had been called upon as a physician to express the general inadequacy of that part of the profession to deal with the subject under consideration, for it usually fell to the lot of the surgeon rather than that of the physician to deal with such cases. The physician is called early in the case; and in looking back over a good number of cases of intestinal obstruction the function of the physician mainly ceased when he has come to the conclusion that the case on the one hand is what has been called by our American confrère (Senn) "dynamic" or mechanical obstruction. He thought there was a good deal of difficulty attending the diagnosis, so much so that in some instances there is absence of indication of local pain, of fever, or of anything like bloody discharge from the bowel, that one hesitates as to the decision. Perhaps the members of the Congress would think him a little wanting in self-reliance if he should adopt the views of the first speaker (Fitz), rather than those of the second (Senn) and Mr. Durham,

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and claim a little time. He thought physicians had seen a good many cases of intestinal obstruction in which there had been either the simple absence of the passage of the fæces, or there had been a good deal of pain and vomiting, where everything pointed strongly to intestinal obstruction, yet where no tumor nor any amount of tenderness could guide one as to the exact locality of the obstruction; that in some cases the use of opium or other narcotic, or the use of injections, had been followed by complete relief. He had been present on several occasions when a man had been examined over night with an obstruction, where the physician could find no definite sign of any local obstruction, and where he had arranged with the surgeon and his assistants to come the next morning to operate, and where either from the influence of narcotics or injections, shortly before the operation was to be performed, nature had given relief. He would agree with all the speakers that when there was satisfactory evidence that a mechanical obstruction existed, sooner or later the case must go into the hands of the surgeon, and the delay should be only a reasonably short one.

Professor ANNANDALE, of Edinburgh, Scotland, regretted to say that he had only heard part of the papers and discussion, and was therefore unable to deal with the subject in a methodical way.

In the treatment of intestinal obstruction it was very important to divide the cases into two classes, acute and chronic. With reference to acute cases, he thought it was perfectly right that everything that medicine could do should be tried, but not tried too long. As soon as it had been fairly tried, say forty-eight hours, and the symptoms are urgent, then he would say the case belongs to the surgeon, and the sooner he opens the abdomen the better.

In regard to chronic cases, he thought the surgeon might wait until the symptoms had become acute, then operate at once.

He had listened attentively to what Mr. Durham had said regarding lumbar colotomy. His experience with that operation had been such, and more particularly in cases of cancer of the rectum, that he preferred inguinal colotomy. He meant by this the performance of colotomy in the left inguinal region, because he had found it was not a more serious surgical procedure as regards risk, and was certainly more simple in a large majority of cases.

Professor FITZ had nothing new to add in closing his part of the discussion.

Professor SENN said that all would agree with him in studying English medical literature, text-books, and hospital reports, that English surgeons were exceedingly conservative. The time had long gone by when any theory or method of operation should be accepted as final, safe, and applicable, unless it had been thoroughly tried.

He could assure our distinguished guest (Mr. Durham) that hydrogen gas when injected into the intestinal canal never forms explosive compounds; that atmospheric air is never present in the intestinal canal; that the procedure has been tried more than a hundred times, and has proved thoroughly safe and infallible at the bedside. In one of the first experiments made he had to submit as (a victim) to the experiment, and would never have submitted to such a suicidal thing until its safety had been thoroughly tested on animals.

SECOND DAY.

Professor ROSWELL PARK, of Buffalo, read a paper on "Cerebral Localization in its Surgical Relations." The essay was devoted principally to the surgical aspects of the subject, and omitted consideration of those cases in which operation is dictated by a study of the subjective rather than of the objective features.

Cerebral Topographical Anatomy.—The areas which most concern the surgeon are those which cluster around the fissure of Rolando. A few bony prominences deserve attention in this connection—that at the point of the nose known as the glabella; the external occipital protuberance known

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also as the inion; the point of the vertex half way between these two—the bregma; the external angle of the orbit, the tip of the mastoid process, and the lower border of the alveolar process of the upper jaw. The fissure of Rolando has its upper end about five centimetres back of the bregma, but does not run quite in the middle line; its lower end lies about half a centimetre behind the auriculo-bregmatic line, and a little above an imaginary line projected backward from the superciliary ridge; thus, the lower end of this fissure will be found about six centimetres above and a little behind the external auditory canal, or about an inch behind the bifurcation of the fissure of Sylvius. In regard to the convolutions, it must be stated that lesions of the dura-mater overlying motor areas are not always to be distinguished from lesions in the cortex beneath. It is enough for the surgeon that a lesion of some kind can be located with reasonable accuracy. It matters not whether this is an old, irritative lesion, an acute suppurative process between the bone and the brain, or an abscess or tumor of the brain itself. The indication for exploration is just as strong in either case.

When and Where can one Trephine with Safety?—The safest rule is to first apply the trephine over those areas which do not overlie large vascular channels. Afterward, the opening may be extended in any direction, and to any required extent. The greatest hesitation is with regard to opening one of the sinuses. Two dangers attend such an accident: one, fatal air embolism; the other, profuse hæmorrhage. The former danger is almost a theoretical one, and the other may be overcome by plugging the sinus or closing its wound with a fine needle and suture.

Cerebral and Cerebellar Abscess.—Bergmann has shown that abscess of the brain has but one result—death, and that the surgeon's knife offers the only relief. So far as we know, there is no such thing as idiopathic abscess of the brain; it is always the result of some external wound of the head, or some extension from diseased surrounding bone. The only exceptions to this statement are to be found in the case of pyæmia or tuberculous abscess. The symptoms of deep brain abscess may be divided into three groups, according to causes: 1. Those which are inseparable from indications of suppuration. Such are those disturbances which may follow any deep-seated foreign body. 2. Symptoms of increased intra-cranial pressure and of disturbed relations. 3. Special symptoms by which the locality of the disturbance may be ascertained so long as the gray matter is undestroyed; the collection of pus may assume large dimensions, and still no intense motor symptoms appear. Local elevation of temperature over the abscess is a symptom of importance when present, but its absence need not negative a diagnosis, if made on other grounds. Wernicke has stated that there is a peculiar disturbance of speech which points to lesion of the temporal region. This is the confusion of correct with incorrect words. In the general diagnosis of cerebral abscess, it is to be remembered that there usually is a latent period which may continue for an indefinite period. The stage of active symptoms is usually ushered in by more or less headache, slight rise in temperature; local or motor symptoms can only be expected when the abscess is in the motor area of the brain.

Dangers of Operation.—The principal immediate dangers are two—hæmorrhage and œdema. Hæmorrhage from the pia or from the brain-substance is usually readily controlled, but disastrous hæmorrhage may occur from unexpected sources. When there is bleeding a temporary tampon of iodoform gauze may be applied. The dural and skin flaps are laid over this and an absorbent dressing applied. At the end of forty-eight hours this may be removed and sutures inserted.

The second danger, that of acute brain œdema, may be brought about either by

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increase of intra-arterial pressure or by obstruction of the venous channels of escape. Under this accumulation the brain becomes more sodden.

The author had collected reports of sixty-three cases, which were presented in summary and in tabular form; seventeen of these terminated fatally, although only five of these deaths could properly be attributed to the operation; fifteen of the cases were abscesses, subdural or subcortical. In eleven cases the lesion was a tumor, exclusive of tubercular nodules. Of cysts, properly speaking, there were twelve. The twenty-five other cases were of a miscellaneous nature. In three cases the true character of the lesion was not revealed during the operation, and was only discovered at the autopsy. In two cases, in which no palpable or visible lesion was discovered at the time of operating, the symptoms which led to the performance of the operation were nevertheless relieved, though nothing but careful exploration was practiced.

Of the sixty-three operations, seventeen were performed by American surgeons. Those who have themselves operated more than once are, with the number of their operations: Macewen, 12; Horsley, 11; Bergmann, 4; Weir, 3; Keen, 3; and Park 3.

Professor CHARLES K. MILLS, of Philadelphia, read a paper on "Cerebral Localization in its Practical Relations." In his introductory remarks, the speaker referred to the fact that from the clinical observation of practical physicians sprang the conceptions out of which developed the science and art of cerebral localization. Allusion was made to the discoveries of Bouillaud, and of Broca, on speech localization; to the announcement by J. Hughlings Jackson, in 1864, that certain convolutions superintended the delicate movements of the hand which were under the immediate control of the mind; and to Hitzig's researches having originated from his observing certain ocular movements during galvanization of the heads of his patients. Brief reference was made to the history of American work in localization; to the investigations, in 1874, of the New York Society of Neurology and Electrology; to Putnam's discovery that irritation of the white matter beneath definite cortical centres produced movements similar to those caused by irritation of the centres themselves; to the labors of Wood and Ott on the heat centres, and to the light thrown by these investigations upon the mechanism of fever and the action of drugs upon different forms of high temperature.

Trephining for cases of insanity, particularly when guided by the rules of localization, was briefly considered. Two of the recent cases of brain operation, reported by Bennett and Gould and by Macewen, were cited as possibly opening a new field for surgical interference in insanity; the excision of cortical areas as a method of treatment when certain subjective phenomena, such as hallucinations of sight or hearing, can be given a local habitation in the brain.

The practical conclusion was that the neurologist and surgeon must depend upon motor symptoms alone in fixing the site for operation in cases where the motor lesions were definite. When positive sensory symptoms were present, they might sometimes serve to aid in locating more exactly the position for operation, but the data were not sufficient for positive reliance.

The question of morphological peculiarities of the human brain was briefly alluded to as having some practical bearing upon the subject under discussion. The position of the so-called angular gyre and aberrations in the parieto-occipital region were more particularly discussed. Even the fissure of Sylvius, the central and parieto-occipital fissures sometimes present considerable variation; but, as a rule, such aberrations were not confusing in operating on the motor region after the methods of Broca, Thane, and others.

Professor MOSES ALLEN STARR, of New

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York, read a paper on "Cerebral Localization in Reference to Aphasia."

It is evident that cerebral surgery has a great future, but is dependent on neurology for its guide. The burden of responsibility for future progress rests upon physicians, for diagnosis must precede operation.

The great discoveries in cerebral localization made in the past have been reached by means of the collection and analysis of large numbers of cases of localized disease in man, rather than through physiological experiment. Future advance must be in the same line. Hence the importance, too much overlooked in this country, of recording carefully every case of cerebral disease. And to be properly recorded it must be carefully examined. This is especially necessary in cases of disturbance of speech.

The history of aphasia presents three epochs: First, that of Broca, in which the fact was established that lesions of the third frontal convolution on the left hemisphere produced aphasia. Secondly, that of Wernicke, in which a distinction between sensory and motor aphasia was drawn, and the former was shown in a few cases to be due to lesion of the first temporal convolution. Thirdly, that of Charcot, in which the four mental elements of speech were carefully separated. Charcot says, "A word is a complexus; in it we can discover, in persons of education, four distinct elements: the auditory memory-picture, by whose means we are able to grasp the sense of words heard; the visual memory-picture, which enables us to comprehend the words written or printed; and also two motor elements—the motor memory of articulation, and the motor memory of writing; the first developed by the repetition of movements of the tongue and lips necessary to pronounce a word, the second by the practice of motions of the hand and fingers necessary for writing." Each of these memories being distinct can be lost. The result is disturbance of speech whose forms vary. The loss of visual memories produces verbal amnesia and word-blindness; the loss of auditory memories causes word-deafness; the loss of motor memories of writing results in agraphia; the loss of motor memories of pronunciation produces motor aphasia. Individuals differ largely in the degree of cultivation of each of these memories, and hence suffer differently when affected by their loss; *e. g.*, the literary man presenting far more symptoms than a common laborer, when his memories of things read are lost. Another fact of importance is the independence of speech and thought. Aphasics may retain their musical faculties and may sing when they cannot talk. Thinking, though largely done by the aid of speech, is not dependent upon it. We have memory-pictures of the shape, form, or sound and odor of objects, independent of their names, and unless these are intact in the brain the perception of the object does not produce recognition of its nature or use, and does not awaken the memory of its name. The condition termed apoaxia is found, with aphasia, in some cases, but not in all.

Turning from clinical distinctions to pathology, the localization of the various memories necessary to speech was discussed. Motor aphasia is produced by lesion in Broca's centre, or in the tract from that centre to the cranial nerve-nuclei. If it is due to lesion in the latter, it is temporary and accompanied by other local symptoms. The situation of the lesion producing motor agraphia is uncertain. Word-deafness is due to lesion in the first temporal convolution, and is associated with word-blindness when the lesion extends to the supramarginal convolution and angular gyrus. All the cases of pure sensory aphasia in which the lesion was limited to these parts (forty-one in number) were collected, and a chart of the brain was shown to support the localization stated. The condition of apoaxia was shown to accompany lesions situated in or beneath the angular gyrus.

Dr. DAVID FERRIER, of London, England, in opening the discussion on the above papers, said he took special pride

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and satisfaction in the fact that this subject had been assigned such an important place in this great gathering of the profession in this country.

He had long cherished the idea that the determination of the function of the brain would in time lead to successful treatment by surgery of some of the most distressing ailments of our fellow creatures. There is a great future for cerebral surgery. While there have been many successes, yet there have been some failures. He alluded more particularly to cases of Jacksonian epilepsy. The discharging lesion had been removed in many of these cases without permanent cure. There is yet much to be learned in regard to the functions of the brain and in regard to the diagnosis of cerebral disease.

Mr. VICTOR HORSLEY, of London, England, described briefly the results of his experiments upon the motor region. He believed that here three functions were clearly represented: First, the representation of the so-called tactile sense; second, representation of the so-called motor sense; third, the great representation of movement. It is found that, morphologically, the large cells in the fourth layer are concerned in the representation of movement, and he could not understand why we should not allot to the small cells in the upper layer the representation of sensation. He had divided the motor region into minute areas, and studied the effects of irritation of these separate areas. He had found that the representation for any part was not limited to one minute portion of the brain, but that there was a focal point where it was strongest, and then it graduated as we passed outward. In his different experiments he had met with certain points of difference. These were attributable to the employment of different species of monkeys. He now uses only the bonnet monkey, and for all practical surgical purposes, the results are applicable to man.

Experiments performed during the past summer had enabled him to prove that the convulsions of so-called Jacksonian epilepsy were solely due to the cortex, and not at all dependent upon the spinal cord, or upon the bulbar spinal system.

Professor ROBERT F. WEIR, of New York, had, since 1883, operated in ten cases of brain surgery—three times for tumor, three for abscess, twice for hæmorrhage into the cerebrum where there was no external injury to indicate its locality, once for epilepsy, and once for cerebral pain.

Professor KEEN has removed a tumor weighing over four ounces, with recovery, and Mr. HORSLEY has removed with success a tumor weighing four and a half ounces from a patient in a state of coma.

THIRD DAY.

The closing session of the Congress was held in the Army Medical Museum.

Dr. BILLINGS, in delivering the President's address, said the prominent characteristics of the great majority of the societies composing the Congress is that their members have, as a rule, been chosen because they have either made some valuable contribution to medical literature, or have in some way rendered aid to the profession; in other words, they are supposed to be men whose labor and thought have not been confined to their own interests, or to those of their own patients. It may, therefore, be assumed that physicians are all interested in medical science, not merely as a means of giving new modes of diagnosis, or of treatment, but also for its own sake, for the sake of knowing and for the pleasure of investigation.

He was here as the representative of the medical department of the General Government, which has need of the best knowledge of all the specialties, and is beginning, in its turn, to do something for each. Within the last twenty-five years the General Government has, in its turn, done something for medicine and for physicians by founding and maintaining a medical library and museum in Washington, under the direction of the Medical Department of the Army.

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The necessities of modern progress in anatomy, physiology, and pathology, have led to the creation of medical museums in all parts of the civilized world. In most of the continental capitals these are connected with universities supported by the state. The medical museum should possess a series of specimens showing the normal anatomy of the domestic animals, or of animals used in experimental pathology, pharmacology, or physiology, as a basis for comparison with abnormal or pathological specimens derived from the same animals.

Elaborate dissections under alcohol, mounted in opaque dishes with flat glass covers, and sections of frozen bodies similarly mounted, are what the student and practitioner most desire to see. In our museum there are some excellent specimens of this kind prepared under the direction of Professor His of Leipzig, of Professor Cunningham of Dublin, and by our own anatomist, Dr. Wortman. The annual appropriation for the museum at present is $5,000. This is sufficient, except that the printing of the catalogue must be an extra charge; but the medical profession should see to it that the amount is not reduced in the rhythmic spasms of partial economy with which some of our statesmen are afflicted.

Speaking in behalf of the Army Medical Department, and for the dead as well as for the living, who have been charged with this work, he could truly say that they had been very proud of their charge, and that they had done their best to make the museum and library such as a great profession and a great nation have a right to demand.

At the conclusion of the address a reception was given to the members and guests of the Congress and their ladies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Professor W. H. DRAPER, of New York, delivered the President's address, and offered some reflections upon the relation which scientific and practical medicine bear to each other.

He said: We may differentiate the science from the art of medicine, but we cannot practically dissociate them. In their ideal union they are interwoven like warp and woof, built into each other like foundation and superstructure. Scientific medicine, to be sure, is not always practical, but it is ever striving to become so; and practical medicine, though not always in a strict sense scientific, is constantly tending to that end. In medicine, perhaps less than in any other department of human activity, has the distinction between the art and the science been sharply drawn. In spite of this close mutual relation, the worker in the science and the worker in the art occupy essentially distinct positions, and the aim and the methods peculiar to each must be constantly kept in view. The one is a naturalist, the other an artsman. The tendency is to accentuate the distinction. The obvious results of this specializing it is hardly necessary to point out. The observations of the physician have not only suggested to the scientist some of the most interesting problems in biology but some of the most important factors in their solution.

Dr. W. W. JOHNSTON, of Washington, read a paper entitled, "Geographical Distribution of Typhoid Fever in the United States."

The paper was based largely upon the answers returned from three hundred and fifty physicians in various parts of the country, and colored maps showing the distribution of typhoid, and of malarial fever were exhibited. Dr. Johnston's conclusions are: 1. That typhoid fever has a much wider distribution in this country than is accepted by the majority of medical men, and that its prevalence is very great in all of the regions reviewed in the paper. 2. That the varieties and modifications of type are very numerous, covering a wide range, and simulating types of mala-

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rial disease. 3. That the prevailing type is without many, sometimes without any, of the more characteristic symptoms of the disease. 4. That the principal direction in which clinical study can be useful in the present stage of our knowledge is in the collection of cases of undoubted typhoid fever; cases in which the diagnosis is made certain by characteristic symptoms, especially by post-mortem examination, in which there have been phenomena supposed to show malarial infection. 5. By the study of the localities of occurrence of such cases, by the finding of them, perhaps, in non-malarial regions, by the study of the blood and stool micro-organisms. 6. That no true progress can be made until the true value of the malaria-like symptoms are determined.

Dr. JAMES H. HUTCHINSON, of Philadelphia, read a paper on "The Management of the Stage of Convalescence in Typhoid Fever."

With the return of the normal temperature, the physician is prone to overlook the danger. The authorities differ greatly as to the rules laid down for the management of this stage, some advising the administration of solid food so early as the second day after the cessation of the fever; others not until a week or ten days have passed. Dr. Hutchinson favors the continued use of the milk diet, with a little milk-toast, and at the end of two weeks butcher's meat. The only objection to be urged against the milk diet are the wishes of the patient and the tendency it occasionally has to produce constipation.

The administration of alcohol may be withheld in many instances; but, on the other hand, it may, for the first time, become necessary, and no doubt convalescence is often very much hastened by its use.

Dr. PEABODY, of New York, in opening the discussion, stated that he did not believe that errors in diet were so frequently the cause of recrudescence as was formerly supposed. In regard to ulcers as a cause of diarrhœa, he is of the opinion that their presence has nothing whatever to do with its production, a conclusion derived from the frequent study of cases at the autopsy table.

Dr. ORD, of London, in a general way, agreed with the reader of the paper, but thought that one cannot lay down hard and fast rules. One must be guided, in a measure, by the desires of the patient, and must give in to these desires. He referred to a hospital case which ran the usual course up to a certain period in the convalescence, when there was added a more extraordinary range of temperature for days, with delirium, and an abiding desire for food. The patient had been allowed milk and beef-tea, and for ten days two eggs daily. She was given boiled sole, and within twenty-four hours her temperature was normal, and convalescence was thereafter uninterrupted. We should study the individual as well as the fever.

Dr. KINNICUTT, of New York, remarked that he considered relapse to be very often a result of indiscretion in diet, and that therefore the old way of adhering strictly to a liquid diet was the best.

Dr. GEORGE ROSS, of Montreal, then presented a communication entitled, "Some Forms of Paralysis after Typhoid Fever."

It is not to be wondered at that the nervous system suffers after typhoid. The signs of exhaustion of the nervous system are constant, and generally in proportion to the severity of the fever. The nervous disturbance may be general, or some part of the spinal cord or some one or more of the spinal nerves exhibit altered functions. The nervous phenomena almost invariably are both motor and sensory; always in the case of spinal nerves, never in any of mixed. According to Nothnagel, the order of frequency of these affections is as follows: 1. Parts by one nerve, as the ulnar or peroneal. 2. Paraplegia, preferably of the lower extremities. 3. Less frequently, one extremity, either upper or lower, or two extremities in crossed order.

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4. Simple alteration of sensibility. The history of a case of paraplegia resulting directly from typhoid fever, and ending in recovery, was given in detail, and also the history of a case which presented paralysis involving all the limbs and the muscles of the palate.

Dr. FREDERICK FORCHEIMER, of Cincinnati, read a paper on "Fatty Heart."

The paper was based on a collection of one hundred and twenty-two cases—eighty-eight males and thirty-four females—fifty-nine of whom were below sixty years of age and forty above. The relation of obesity to fatty heart was considered, and the difficulties attending the diagnosis of the affection dwelt upon.

Dr. JAMES C. WILSON, of Philadelphia, presented a communication entitled, "Causal Therapeutics in Infectious Diseases."

The paper was based upon an experimental study of the effect of hypodermic injections of calomel in the treatment of five cases of typhoid fever, all severe, and three of pulmonary tuberculosis. In all there was a distinct amelioration of symptoms, and a modification of the temperatures. The drug was given at intervals of four or five days.

SECOND DAY.

Dr. ROBERT T. EDES, of Washington, read a paper on "The Absolute and Relative Value of Albumen and Casts, and of Renal Inadequacy, in the Diagnosis and Prognosis of Diseases of the Kidney."

The term albuminuria has held a place in medical nomenclature, until comparatively recently, synonymous with Bright's disease. The writer referred to recent and most extensive observations on albuminuria. The varieties of albumen were then considered. Dr. Munn's observations were cited to show that many cases of intermittent albuminuria, when followed out carefully, are found to have developed Bright's disease. Four of Dr. Munn's sixty-nine cases died within three years. Many such are met with in business men of middle-life, and of overweight. The great diagnostic significance of casts, and their variety, was next touched upon. A question of great interest is, whether we can detect a pathological condition of the kidney in the diminution of any of the constituents of the urine. Dr. Noyes' paper in the *American Journal of the Medical Sciences* is of interest in this connection. Long after the presence of kidney disease is established, the daily quantity of urea excreted may be far above the physiological limit. A very badly damaged kidney may, in fact, get rid of a large quantity of urea. Cases in illustration of the fact that the excretion of urea and other solids does not necessarily fall below the physiological limit. The question of food is here of the greatest importance.

Professor JAMES TYSON, of Philadelphia, presented a communication entitled, "The Relation of Albuminuria to Life Insurance."

No system of life insurance is perfect which does not include those who are apparently healthy and those who are not. Certain applicants presenting themselves for examination for life insurance are wrongfully rejected, because of the presence of albumen in the urine. After this introduction the writer went on to mention the different terms used to indicate the particular forms of albuminuria under consideration, and gave his decided preference to the term "functional." He stated conditions which, if observed by competent and well-trained observers, if it were always possible to get such, would enable the companies to save these risks. These are: 1. The applicant must in all other respects present the signs of good health. 2. The albuminuria must be unaccompanied by tube-casts, however perfect may be the health in other respects; albumen and tube-casts conjoined always meaning structural changes. 3. The specific gravity of the urine, that is, the "real" specific gravity (that of the quantity for the twenty-four

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hours), should not be lower than 1.015–1.025. Great care must be taken to secure the "real" specific gravity, as it would be unfair, to reject the candidate on account of the specific gravity of a single specimen. 4. The signs of hypertrophy of the left ventricle, and the existence of high vascular tension associated with albumen, would exclude the candidate. 5. The age of the applicant is a highly important consideration. It is doubtful whether any person forty years of age with functional albuminuria should be accepted, unless at least he has been long under the observation of a competent and conscientious examiner. 6. The presence of true gout in any case should decide against the person, because gout is always, sooner or later, followed by interstitial nephritis. Finally, retinal changes, such as are associated with nephritis, should exclude the applicant. In conclusion, the writer does not claim, of course, that we are in a position to put these conditions in operation, but believes, as we are enabled gradually to secure the desired education and training in medical examiners, the applications of these conditions will be possible. The absence of the albumen from the urine passed on rising in the morning is an important aid in the diagnosis of functional albuminuria, but not an essential one.

Professor A. L. Loomis, of New York, read a paper entitled, "The Cardiac Changes in Chronic Bright's Disease."

Pathological processes become physiological in that they tend to the preservation of health and the prolongation of life. We have two widely different conditions tending to produce arterial tension—conditions which may act singly or conjointly—and affording a rational explanation of the varying amount of cardiac hypertrophy found in apparently similar renal conditions. First, a general and primary arterial sclerosis, to which both the cardiac and renal changes are secondary; and, second, arterial as well as cardiac hypertrophy, which are compensatory and conservative, as is cardiac hypertrophy in aortic lesions.

Professor Samuel C. Chew, of Baltimore, Maryland, followed with a paper on "The Relation Between Chronic Interstitial Nephritis and Angina Pectoris."

After stating that there was no systematic account of the relations between the diseases to be found in any of the writers on the subject, he proceeded to consider the question chiefly from a clinical point of view.

Professor J. M. DaCosta, of Philadelphia, presented a paper on the "Treatment on Valvular Affections of the Heart."

He began with a reference to the prevailing ideas on the treatment of these affections. The presence of a valvular affection is not the key-note to be taken. The indications on which the true treatment should be based are: 1, The state of the heart-muscle and heart-cavities; 2, the rythm of the heart; 3, the condition of the arteries and veins of the body; 4, probable length of disease; 5, the general health of the patient; 6, the secondary results of cardiac affection.

Third Day.

Dr. Edward C. Seguin, of New York, presented a paper on "The Relation Between Trophic Lesions and Diseases of the Nervous System."

The author excluded from consideration vaso-motor disorders, and diffused or quantitative nutritional changes, partly because he considers them to be a distinct subject, and partly because their study would be beyond the scope of a short paper.

He divided the so-called "trophic lesions" into two great classes. In one the lesions are probably mostly due to the action of extraneous causes, and are preventable. The second class embraces lesions which seem to be directly due to the nervous disease, and which are its necessary and unpreventable results.

He endeavored to show that lesions of the second class, which alone merit the

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name of *trophic lesions*, occur in organs and tissues which are anatomically continuous, and whose life or preservation of structure and function is associated or interdependent.

He concludes that disease of the nervous system produces true trophic lesions when it interferes with the associated or interdependent life of continuous tissues. This proposition he offered only as a partial and preliminary answer to the question under discussion.

Professor HORATIO C. WOOD, of Philadelphia, followed with a paper on the same subject. His propositions and conclusions were as follows: 1. It is physiologically proven that the nervous system directly affects general nutrition. 2. Various lesions are the immediate result of previous nerve disease. 3. In various cases the lesions are not preceded by circulatory disturbance. 4. No known vaso-motor condition is capable of causing many of these lesions. 5. Therefore it is absurd to attribute changes to preceding vaso-motor changes.

Dr. ORD, of London, opened the discussion by stating these so-called trophic disturbances might be produced in three ways: 1, Through disease of the spinal cord; 2, through disease of nerves; 3, in a reflex way. In illustration, he mentioned a case of chronic hypertrophic cervical pachymeningitis in which there was a wasting of the tissue in the digits of the affected arm, and osteo-arthritis; also the case of a man who, through violent exercise, had lost power in his arms, and whose muscles underwent extreme wasting. There was also wasting of the skin. In conclusion, Dr. Ord spoke of the swelling of the joints of women approaching the climacteric. Various other reflex disturbances were referred to.

Dr. HENRY P. BOWDITCH, of Boston, considered that much might be gained by studying the subject on simpler lines; that therefore it would be well to limit the question to a consideration of its relation to muscles, for in muscles we have not two sets of nerves anatomically distinct, at least such are not demonstrable; we have not the "anabolic" and "katabolic" or "metabolic" nerves. It were better to confine the term "trophic" to nitrogeneous metabolism of muscle.

Dr. FERRIER, of London, said that the nervous system has a direct influence on the nutrition of tissue altogether apart from vaso-motor influence. The influence of nerves is amply demonstrated in the case of muscles; whether it be in case of the skin is not so certain. Possibly there are centres which preside over nutrition. It is an interesting question whether there are "trophic" nerves apart from motor and sensory.

Mr. VICTOR HORSLEY, of London, called the attention of his hearers to the recent and interesting investigations of his friend, Dr. Frederick Mott. To Dr. Mott belongs the credit of being the first to show that atrophy is a true active distrophy and not a mere passive change. By cutting of the cauda equina he demonstrated an atrophy of the femur. The whole of its inner surface was lined with osteoclasts.

Dr. FRANCIS T. MILES, of Baltimore, next read a paper on "The Effect of Concussion of the Spine on the Reflexes.

Dr. W. H. WELCH reported the results of experiments relating to the thyroid gland of the dog performed by Dr. W. S. Halsted in the Pathological Laboratory of the Johns Hopkins University. Extirpation of both lobes of the gland of the dog was found to be uniformly fatal in from two days to three weeks, with symptoms similar to those noted by previous experimenters. A large number of experiments were performed to test the remarkable statement of Munk that these symptoms and the fatal result are not due to the loss of the thyroid gland, but are referable to some undefined injuries attending the operation of removal. Munk found that eight dogs survived the isolation of the

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gland by ligation of all the arteries and nerves entering it, provided the wound healed by first intention. In the experiments reported by Dr. Welch, with strict antiseptic precautions, the two lobes of the gland were isolated and all their vascular and nervous connections ligated. Under these circumstances the gland underwent coagulation-necrosis, and although in eight cases primary union of the wound was obtained, the animals died with the usual symptoms of extirpation of the entire gland. These results, therefore, are directly opposed to those reported by Munk.

Dr. T. MITCHELL PRUDDEN exhibited a set of microscopic specimens of myxœdema.

Dr. E. O. SHAKESPEARE, of Philadelphia, exhibited photo-micrographs of various micro-organisms.

Dr. JACOBI, of New York, read a paper on "The Pathology of the Thymus Gland."

Because of the great length of the paper only a few extracts are given. The literature of the thymus for the last ten or twenty years treats more of its histology and embryology than of its pathology. The author referred to the fact that there is no certain size of the thymus; that, indeed, a great many different sizes and weights have been taken to be normal by different writers. Dr. Jacobi referred to the very doubtful connection between an alleged hypertrophy of the thymus and a so-called laryngismus stridulus. Still he admitted there are a few cases in which the sudden death of infants could not be explained any better than by the hypertrophy of the gland. Briefly he alluded to inflammations and suppurations of the gland, and to the occurrence of punctated or larger hæmorrhage into the tissue, and to the occurrence of malignant growths in the organ. Among them he mentioned endothelioma, lymphoma, fibroma, sarcoma, carcinoma, and myxoma, which have been described; the majority of them, however, are decidedly doubtful, particularly because it can be proven that a number of these pseudo-plasms did not originate in the thymus, but in the thyroid gland, or in a neighboring lymphatic gland. For the last eight months he had given his particular attention to the study of the thymus, with regard to tuberculosis, syphilis, and diphtheria. The material for the microscopical studies has been gathered from different institutions in New York City. These microscopical examinations were made by Dr. Henry Koplik, in the Laboratory of the College of Physicians and Surgeons. A few of the conclusions arrived at in regard to tuberculosis are as follows:

In cases of tuberculosis of the thymus here presented, tubercle tissue appeared in the following forms:

1. As miliary tubercles, composed entirely of small, round, or polygonal cells, with a reticulum basement substance in the recent state. In the later stages these miliary tubercles or granula may, at their centres, undergo cheesy metamorphosis (coagulation necrosis).

2. Miliary granula are also found which show, in their centres, the presence of giant cells.

3. Large, cheesy areas, in the periphery of which we still find miliary tubercles, of granula, composed of giant cells, around which are arranged spheroidal or polygonal cells in a fine reticulated basement substance.

4. In all cases the arteries of the adjacent areas of the thymus tissue were the seat of a typical endarteritis (in some cases obliterating) of a tubercular character.

5. A very careful and painstaking examination of the above forms showed tuberculosis present in all cases. In most of the above forms we had also the presence of the bacillus in the walls of the arteries and arterioles undergoing tubercular changes, and the lumen of the vessels was the seat of obliterating changes.

6. In the thymus, tuberculosis may

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appear simply as so-called tubercle tissue, an infiltration of the tissue of the gland or organ with spheroidal or polygonal cells, held together by a delicate basement substance; this tissue has no characteristic arrangement; the arteries in such areas may be the seat of obliterating processes. In all of the cases examined by us there were present the characteristic bacillus tuberculosis.

Syphilis results in the thymus in two changes, both in the accumulation of hyperplastic connective-tissue, and, as in one case, in the formation of a gumma. Diphtheria results in general parenchymatous degeneration.

Finally, persistent thymus, found in a man, aged twenty-six, was made the subject of extensive studies, and it was discovered that retrograde metamorphosis was in full progress; the parenchyma being in a condition of fatty degeneration, and the stroma being replaced almost entirely by fat tissue.

The time allotted to the paper was mostly taken up by the demonstration of frozen sections illustrating the normal topography of the thymus; also of photographs of the same, and of microscopical drawings of the pathological changes.

Mr. F. S. Eve, of London, made some remarks on the work of Mr. A. Lingard and himself on "Syphilis," an account of which work was published in *The Lancet* of April, 1886. The bacillus found during their investigations they do not claim to be the specific germ of the disease. Mr. Eve also spoke on the tubercular origin of lupus, and referred to studies of his own in this direction. In one instance he succeeded in producing lupus in a rabbit by inocculation of tissue from a case of the disease.

Dr. William T. Councilman, of Baltimore, presented several microscopic and macroscopic specimens illustrating bovine tuberculosis.

Dr. George M. Sternberg, U. S. A., owing to the lateness of the hour, did not read his paper on "Recent Researches Relating to the Etiology of Yellow Fever," but described the method followed in these researches, which were carried on at Havana, and stated that he had not arrived at any definite result as to the specific etiological element of yellow fever. He had made many cultures from the blood of persons just dead of this disease, as well as from the liver, kidneys, and urine. The results were negative as regards those made from the blood and urine. From the kidneys and liver numerous organisms were obtained, but in no instance did he obtain the micrococcus of Freire. Various tube cultures were shown.

THE AMERICAN SURGICAL ASSOCIATION.

The Association was called to order by the President, Professor D. Hayes Agnew, of Philadelphia, who delivered an address on "The Relation of Social Life to Surgical Disease." He said there is no tyranny more exacting or despotic than that exercised by the conventionalities which govern our living. All stages of life from infancy to old age are under its domination. It dictates the education, the manners, the walk, the dress, the forms of speech—in fine, the whole being. Beyond all contradiction the behests of fashion are vastly more influential in governing public conduct than any arguments drawn from the teachings of structure and function. As a rule, when the conflict is between taste and reason, the victory will be on the side of taste. In nothing is this more forcibly displayed than in the apparel used to protect the body.

Let me name a few examples as illustrative of my subject. For some time the profession has been speculating on the causation of "Nasal and Post-Nasal Catarrh," with its accompanying auditory defects, the growing frequency of which cannot have escaped general observation. Doubtless no single agency will explain the presence among us of this unpleasant

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disease, yet there are facts connected with this affection which to me are very suggestive. I cannot recall an instance in which I have met with the disease among females belonging to the society of Friends, Dunkards, or Mennonites. If this, on more extended observation, proves to be true, may not the head-dress peculiar to these people be accepted in explanation of their exemption. The bonnet which at one time overshadowed the entire head, as all know, has been gradually shrinking in its dimensions, until it has become a mere shadow of its former self, and offers no protection whatever to the head. As a substitute, I would not insist upon the quaint headgear of the Friend, though I believe that any modification which will protect this part of the body will lessen the tendency to catarrhal inflammation of the naso-pharyngeal mucous membrane.

Muscular Restraint.—A legion of physical imperfections arises from muscular restraint. Among these may be mentioned weak ankles, narrow or contracted chests, round shoulders, projecting scapulæ, and lateral curvature of the spine. The foolish concession to appearance and the unwise partiality of parents for enforced systems of education, the demands of which bear no just proportion to the capacity of the infantile mind, constitute the initial or determining force of these physical imperfections. In many cases the weak ankles of children, characterized by eversion of the feet, thus allowing the superincumbent weight of the body to be transmitted to the latter inside of the proper centre of support, is largely chargeable to the miserable practice of placing on the little ones, long before they are able to walk, boots tightly laced up the limb some distance above the ankles. The confinement of the flexor and extensor muscles by this constriction prevents that free play of movement which reacts so favorably on all the elements of an articulation, and that, too, at a time when the growing forces are at full tide, so that when the time arrives for standing and walking, the muscles are unequal to the firm support of the joint. The consequence of this feebleness is soon seen in the turning outward of the feet, throwing the strain on the internal lateral ligaments, which in turn become elongated through growth, and thus the defect becomes established; but the evil does not terminate here. The calcaneo-cuboid and the astragalo-scaphoid ligaments, losing the proper support of the tendon of the posterior tibial muscle, under the abnormal tension begin to yield, and to the deformity of eversion is added that of "flat-foot." That the above is not a mere hypothetical explanation of the ankle defects I have many times verified by finding the threatening symptoms disappear after liberating the imprisoned muscles and subjecting the enfeebled parts to a judicious massage. Under no circumstances, as is too often the case, should instrumental apparatus be applied, unless in cases in which, from neglect, the deformity is thorougly established and is progressive.

Take another deformity, that of bow-legs. On the earliest signs of the unsightly curve, the limb is too often trammeled with irons, and the growth of the muscles arrested, when it is well known that if manual force be systematically applied two or three times a day the limbs will gradually assume their typical form.

Again, in further illustration of our general text, take, as an example, a child who for one long or two short sessions, for six days of the week, sits over the study desk, compelled to assume a position in which, from the inclination of the body, the shoulders fall forward, the head being supported, most probably, on the elbows and hands. In such a posture, the great serratus and pectoralis major and minor muscles are in a state of relaxation, while the erector spinæ and trapezei muscles are in a state of tension. This change in the position of the shoulders gives the scapulæ over, without antagonism or resistance, to the action of the rhomboidei and the leva-

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tores angulæ muscles, which, acting conjointly, cause that projection of the lower angle of the shoulder-blades which the older anatomists termed "scapulæ alatæ." To all this must be added the very important factor of four to six hours in the school-room, and two hours, at least, of home preparation for the following day's recitations, during which time the respiratory functions having been reduced to a minimum of activity, the muscles of the chest are comparatively passive and aëration of the blood tardy. Certainly no combination of conditions could be better devised for forming contracted chests and round shoulders. It is not long before the watchful eye of the mother detects the change in the figure of her child. She will probably discover this and take alarm, even when the pale face, the languid air, and the capricious appetite of the child cause no anxiety; and then comes the second act in the drama of physical deterioration, namely, a resort to shoulder braces and stays, in order to accomplish that which the muscles should be taught to do without restraint or incumbrance.

Lateral Curvature.—While it is true that lateral curvature of the spine depends upon causes both central and peripheral, yet in no small number the deformity is clearly attributable to influences of a social nature. The young column, by reason of the non-union of the epiphysis and diaphyses, and the supple character of its ligaments, is extremely flexible. Whatever, therefore, destroys the muscular equipoise, however inconsiderable the force, if persistently repeated, changes the centre of gravity and develops primary and compensating curves. For six months in the year, any fine morning, groups of young children may be seen plodding along our streets with a miniature library of books suspended from one shoulder. To the already preponderating scale of the balance, add the additional factor, a probably badly arranged light, compelling these little *savants* to assume a lateral inclination of the body in order to obtain the necessary illumination of the subjects of the study, and you have all of the conditions necessary for perpetuating the lateral deformity.

Bodily Constriction.—In the further discussion of my subject, I may next notice the evils of visceral displacement and pressure consequent on abdominal constriction.

The evil effects of this constriction on the viscera of the abdomen and pelvis is most strikingly witnessed in the embarrassed portal circulation, in the different uterine displacements, elongation of ligaments, displaced ovaries, tubal inflammations, hæmorrhoids, hernia and other morbid conditions which either prevent or disqualify the woman for the exercise of those functions of maternity, and which, in addition, through reflex influences, entail a host of functional disorders, reaching into every avenue of the body and invading both the mental and moral constitution of the victim. So prolific have these infirmities become that a new department of surgery has been organized for their special management. To what, if not to social causes, can these morbid changes of structure in the pelvic organs, especially of the uterus and its appendages, be attributed? Why should laceration of the cervix uteri be so common an accident? Labor is a natural process, and ought not, under ordinary circumstances, to be attended by lesion of uterine tissue. I can conceive of no agency more likely to induce that muscular degeneration which predisposes to this accident than the modes and methods of modern living, especially among the inhabitants of great cities. In the expression "modern living," much is embraced. It includes culinary pharmacy, overfeeding and drinking, insufficient or injudicious exercise, improperly heated apartments, and a disproportion between the hours of exercise and rest.

Contrast, if you will, the muscles of the hardy, country housewife, who, bearing the cares and responsibilities of a dependent

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family, bustles about the live-long day indoors and out-of-doors, eats with a relish her plain and simple fare, repairs at reasonable hours to bed, and sleeps the sleep of the beloved, undisturbed by dyspeptic nightmares, and rising with the golden dawn, resumes the round of domestic toil with a clear head and supple limbs; I say, contrast this type of a class with that of another, the woman born to luxury and ease, whose capricious and exacting taste taxes the art of the professional caterer, who drags out the morning hours toying with some crazy piece of embroidery or trashy novel, lunches at one, rides out in the afternoon for an airing of two or three hours, returns to a dinner of five or six courses at seven, completes the evening at the opera, the theatre, or the assembly, and coming home after midnight, crawls into bed weary and exhausted in body and mind, only to rise, with the best hours of the morning gone, for another day of aimless routine life. Can it be doubted that in the first case, with a digestion unimpaired, with the products of textural change consumed by functional activity and eliminated through the proper emunctories, the woman should possess a vital resistance and a tone of tissue altogether superior to that of the other, whose habits of living must necessarily favor their faulty metamorphosis?

To these same agencies must be attributed that brood of nervous and hysterical evils, for the relief of which the gynæcologist too often, I fear, invades the domain of womanhood, around which her whole sexual nature revolves, and which, save only in the direst extremity, should be sacred against all operative intrusion.

Late Marriages constitute another social evil, the penal inflictions of which involve both sexes alike. Pride and luxury determine long engagements or deferred proposals. Marriage, it is believed, necessarily involves an establishment, a display, a retinue of servitors. The good old notion of two souls being united in wedlock for the purpose of being mutual helpmates and patiently, together, working up from modest beginnings to affluence, seems to be entirely at variance with the modern idea of this relation. In the meantime the young man is betrayed into unlawful sources of gratification, alike destructive to moral and physical purity, the pollution of which incontinence is often subsequently communicated to and perpetuated in wife and offspring. I would not dare to say how many cases of this nature had been intrusted to my professional confidence, though I doubt not my experience does not differ from that of many of my professional brethren whom I address. It is under such circumstances that many of those infective inflammations of the Fallopian tubes, as salpingitis and pyosalpinx, arise, which entail the most serious deterioration of health.

The Foot and the Shoe.—It may be thought by some persons that the subject of the foot and the shoe is not of sufficient dignity to appear in a public address. The Romans and the Greeks thought differently. The literature of both people is full of references to the shoe worn by both sexes. So important, indeed, are the feet to the well-being of the body that whatever impairs their usefulness, either for support or locomotion, becomes a positive calamity. Nothing can be more unlike the human foot than the modern shoe. Let anyone leave the impress of his or her foot in the wet sand of the seashore, and then place alongside of the imprint a fashionable shoe; that the two were ever intended for each other would scarcely strike a child of the forests. The North American Indian entertains juster notions about clothing this portion of his body than does the civilized denizen of New York or Philadelphia.

Games and Amusements which in themselves are proper and praiseworthy, too often become developed into a craze, working both moral and physical mischief. Professor Leuf, himself a professional in

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the national game of base-ball, has described the "pitcher's arm," a condition of over-taxed function, and one in which all the anatomical elements of the upper arm are involved. There is also the tennis arm, and the swollen supersensitive prostate of the bicyclist, both due to the abuse of popular amusements.

Defects of Refraction, or visual defects, constitute another class of affections fairly attributable, in many instances, to social influences. The number of children which may be seen in our streets any day wearing glasses has become a matter of common observation. It is far from being probable that the most exquisite piece of mechanism, the human eye, came from the Divine Artificer imperfect. Because eyes are young, it does not follow that they are thereby better fitted to sustain prolonged use. Just the reverse is true, and it is high time that parents and educators begin to recognize the fact. The power of the eyes for continued use, like that of other organs of the body, is one of gradation. It moves in the general procession and strengthens with the advance in life, until development has attained its zenith. Not only so, but the eye being a part of the body it must suffer or rejoice through the operation of general causes. A bone may have its normal curves changed, a tendon may slip from its appointed groove, or a blood-vessel be destroyed, and yet very little disability be realized, but the eye is made up of such extremely delicate structures, and acts according to fixed physical laws, that not the slightest alteration of a curve, or the mobility or density of its media, can occur without great vitiation of function. To exact, therefore, long hours of study from children of a tender age, involves a degree of functional strain altogether disproportionate to the structural resources of the organ, and, by disturbing the orderly processes of nutrition, gives rise to hypermetropia, asthenopia, astigmatism, and its companion, headache. That the picture is not too highly colored, or the sensation over-strained, we have only to contrast the children born and reared in those portions of the country not too much dominated by the methods of modern civilization, and who rarely demand a resort to artificial aids to provide for abnormalities of vision. The only remedy for the evil, where infantile scholarship is insisted upon, is the Kindergarten, or object system, the most natural and effective plan of impressing the young mind.

Renal Disease.—Is there any reasonable explanation drawn from sources of a social nature for the great frequency of these renal disorders, which come more particularly under the care of the surgeon, as crystalline deposits and calculi? For maintaining the general health at the highest physiological standard, a proper quality of food and the proper disposal of tissue waste are essential conditions. Along with wealth and luxury come the abuses of the table. Americans are fast becoming a nation of dyspeptics. Our country is so rich in the products of every zone, that nowhere else in the world can you find such a variety of foods, animal and vegetable. These foods, manipulated in a thousand ways by the subtle art of the professional cook, almost necessarily betray one into excess, and also create the desire for wine and other alcoholic beverages to aid the stomach in disposing of its plethoric supply.

In great cities, which furnish relatively the largest number of cases of renal disease, affecting pre-eminently the mercantile and sedentary classes, we find just the conditions favorable to their development. The competitions of trade keep the merchant always at white heat. Time is golden, and the street-car and other means of conveyance annihilate distance, and the ride is substituted for the needful walk. A hasty lunch at the most convenient restaurant satisfies the inner man until the business of the day is closed, when, weary and worn, he is driven to his home to partake of a course dinner, the balance of the

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evening to be spent on the lounge with the evening paper, or the latest periodical. To the literary man the fascinations of the study and the library charm him away, with their siren voices, from the fields and the highways, until bodily exercise grows distasteful and repugnant. In the meantime there has been no provision made for the waste or tissue metamorphoses of the body through that great agency, exercise. These accumulate in the blood, the internal eliminating organs, of which the kidneys are chief, are overtaxed, and then follow the evils of malassimilation and of excretion, in the form of urates and oxalates, often resulting in the formation of calculi.

In conclusion, may we ever hope for a time when the race will realize that these bodies which we wear, which God has so highly honored by his own incarnation, are sacred temples to be kept in harmony with recognized physical laws, and not to be made instruments of mere animal gratification.

Professor JOHN ASHHURST, of Philadelphia, read a paper entitled "A Contribution to the Study of Excisions of the larger Joints."

It was based upon the records of 120 cases occurring in his own practice, in which excision of the larger joints had been required, embracing ten of shoulder-joint; nineteen of elbow-joint; forty of hip-joint; fifty-one of knee-joint, and six of ankle-joint excisions.

The large majority of the excisions had been performed without any of the so-called "antiseptic precautions," and the wounds had been dressed with simple oiled lint, or with lint saturated with dilute alcohol. For more than a year past, however, he had employed the antiseptic method in almost all his large operations, using also antiseptic dressings in their after-treatment, and with benefit; though as regards the ultimate welfare of the patients he has not noticed any gain. His best series of consecutive successes had been obtained under old methods, and he had not obtained any diminution of mortality by the adoption of the new. At the same time he had seen no ill results which could be attributed to the use of antiseptic measures; their use shortens the period of convalescence, and they have the merit, on account of the infrequent change of dressings needed, that they greatly lessen the surgeon's labor.

Professor F. S. DENNIS, of New York, called attention to cases of excision of knee-joint for disease beginning in abscess in the condyle. In these cases the abscess cavity breaks down after recovery, leading to the production of deformity. In these cases he takes away all of the abscess-cavity, saws away a corresponding piece from the tibia, and brings the oblique surfaces together.

He has been in the habit of employing antiseptic dressings, removing the drainage-tube on the third day, allowing the first dressing to remain five or six weeks.

In excision for injury, only enough bone to allow of free drainage should be removed.

Sir WILLIAM MACCORMAC, of London, England, had heard with some surprise that the tendency seemed to be to postpone excision of hip-joint until all other measures had failed. This is not the practice in regard to any other joint. In England the disposition is to perform the operation at an earlier period. Another point that he had not heard mentioned in the paper was in reference to the performance of operation in cases of old dislocation of the joint. He had performed this operation with success in old hip-joint dislocation, and reported the case of a sailor coming under observation three years after the occurrence of dislocation of hip-joint which had not been reduced. After the operation he could use the limb perfectly. He had been much interested in the recommendation of Dr. Ashhurst that a long incision be made to reach the subcrural bursa, a suggestion which he had not heard mentioned by any other surgeon.

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Dr. E. M. MOORE, of Rochester, had been somewhat surprised to hear a certain amount of indifference expressed toward the use of antiseptic surgery. He had found in his practice the greatest improvement follow the use of antiseptic dressing in these cases of excision. He cited several cases showing the result obtained.

Professor JOHN E. OWENS, of Chicago, agreed to the value of the wire cuirass, and referred to a modification of this apparatus, consisting in the substitution of a frame of gas-pipe conforming to the outlines of the body. On this the body is supported by means of flannel stretched between the two sides of the frames. Extension may be applied, if desired, by the use of adhesive plaster, counter-extension being provided for by elevating the foot of the frame. After keeping patients in bed for thirty days, he tries to get them into the open air. He had found great advantage in keeping up a certain amount of extension after the patient was allowed to get up. By removing pain this enables the patient to move the joint more freely, and thus tends to far greater mobility of the part. He thought that there was no comparison between the antiseptic methods and those formerly employed.

Dr. F. LANGE, of New York, referred to a class of cases in which the disease of the hip began in the tissue outside of the joint, the articulation becoming involved at a later stage of the affection. In these cases he recommended early operation with the hope that in this way necessity for opening the joint would be avoided.

Professor NICHOLAS SENN, of Milwaukee, read a paper on "The Relation of Microörganism to Injuries and Surgical Diseases."

At the present time no argument is required to show that many special conditions are due to the presence of bacteria. In regard to the so-called hereditary transmission of disease, the author held that the specific microbes of the specific diseases are transmitted directly from parent to child. In evidence of this he referred to cases of so-called hereditary osteomyelitis in newly-born infants. In other cases, while this same origin may be inferred, we have as yet no direct evidence that such is the case. In regard to the question whether or not pathogenic micro-organisms exist in the healthy body, while the results of some observers point in this direction, the results of others are opposed to the existence of pathogenic organisms in the healthy body. The conclusion was that under certain circumstances pathogenic organisms might be present. There is proof of this in cases in which, after accidental injury, there is localization of these pathogenic organisms. Acute suppurative infectious osteomyelitis, following slight injury or exposure, was cited as an illustration of this fact. This localization is favored by certain anatomical conditions. The antagonism among micro-organisms was being considered when the time of the author expired.

Professor SENN, in concluding the discussion, said that the diseases enumerated in his paper included only those in which the specific cause had been isolated, cultivated outside of the human body, and in which the injection of this culture produces identical lesions. When these three things are done we have furnished positive proof that the disease is due to specific germs. Another class of diseases had been alluded to in the paper in which there was reason to believe from analogy that the affection was due to specific germs, although the three conditions above referred to had not as yet been fulfilled. So far no one had been able to show that the supposed bacillus of syphilis was the specific bacillus. That it is a specific disease can not be doubted; that it is due to a microbe can not be doubted, but to establish this positively, experimenters must do what Koch did before he announced the specific origin of tuberculosis.

He was firmly convinced from his observations that tumors in the true sense of the

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word were not due to microbes. He had made tumor implantations for many years in animals, and in justifiable cases in man, both close to the original seat of disease and at remote points, without obtaining the least evidence of the *microbic origin* of disease.

Professor W. W. KEEN, of Philadelphia, then read a paper entitled "Three Cases of Brain Surgery."

The first case was one of removal of a large tumor from the brain; the second, trephining for old depressed fracture followed by epilepsy, with removal of underlying brain substance; the third was the removal of the cerebral motor centre for the left wrist and hand, for epilepsy.

Professor N. SENN, of Milwaukee, read a paper on the "Relation of Micro-Organisms to Injuries and Surgical Diseases." The conclusion was that, under certain circumstances, pathogenic organisms might be present. Acute suppurative infectious osteo-myelitis, following slight injury or exposure, was cited as an illustration of this fact.

Professor ROSWELL PARK, of Buffalo, had examined pus from fifty-two sources, and presented a table showing the number of cases in which pyogenic bacteria were found.

SECOND DAY.

Dr. HUNTER MCGUIRE, of Richmond, Virginia, read a paper on "The Formation of an Artificial Uretha for Prostatic Obstruction."

It has been my lot to meet with a number of cases of hypertrophy of the prostate gland, which produce more or less obstruction to the passage of the urine. These are conveniently divided into three classes.

1. Cases where the obstruction was due to temporary congestion of an already enlarged gland, which yielded to the ordinary treatment and did not return.

2. A class of cases when the obstruction to the passage of urine was permanent but not great. Attention to the general health, the occasional introduction of the catheter and washing out the bladder were all that the cases required. These cases are, however, never free from danger from exposure, etc, and gradual enlargement may go on and bring about the condition met with in the third class.

3. In these cases the obstruction is great and fixed; micturition is frequent and difficult, perhaps impossible without the aid of the catheter. The introduction of the instrument grows more and more difficult. Offensive residual urine is always present, and the general health suffers greatly. Cystitis, localized or general, is a painful and pronounced symptom. Violent tenesmus of the bladder, provoked by the obstruction, injures the vesical ends of the ureters, possibly a reflux of stale urine is driven into these canals, and ureteritis follows, then pyelitis and pyelonephrosis, from which the patient dies.

The paper was devoted to a consideration of surgical interference in this third class of cases.

Dr. JOHN H. PACKARD, of Philadelphia, read a paper on "Supra-Pubic Cystotomy."

The present paper was supplementary to one on the same subject read by Dr. Packard at the last meeting, and was intended to correct an accidental omission of the views of Sir Henry Thompson. These were now considered, extensive quotations from the works of this author being given. Two cases were reported, in one of which the operation was performed for the removal of a portion of a silver catheter broken off in the bladder; and in the other, for the removal of a piece of rubber catheter, said to have been broken off several months previously. In this case, a stone weighing five hundred and seventy-one grains was removed, in the interior of which was found the *foreign body*.

Professor S. W. GROSS, of Philadelphia, thought that Dr. McGuire was to be congratulated on having introduced a new

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operation, based upon the mechanism of the bladder, and the physiology of micturition—the formation of an artificial uretha in a new position. The various operations which had been performed for the relief of prostatic obstruction were next referred to, the operations of Harrison, Mercier, Bartinini, and McGill being considered.

Professor WILLIAM T. BRIGGS, of Nashville, thought that perhaps in the cases reported by Dr. McGuire, a better result might have been obtained by lateral lithotomy, provided the stones were not too large to be removed by that route, for he had noted that after incision into the prostate, the gland diminished in size.

Mr. REGINALD HARRISON, of Liverpool, England, said that there are two general methods of relieving obstruction due to enlarged prostate, one by attacking the gland through the bladder, and the other through the perineum. In his operation he makes a median or lateral incision through the perineum according to circumstances. The obstructing prostate is next divided with considerable freedom, and a drainage-tube of considerable size introduced. From this operation he gets good results. Perineal lithotomy is preferable to the supra-pubic operation, because the lateral incision gives sufficient room for all manipulations. It gives an ample opening for the removal of a stone of considerable dimensions. It also permits of the more or less permament drainage which these cases require. He had also, through a perineal opening, used the perineal lithotrite with success. All methods of operation should be remembered, and each employed in those cases where it seems indicated.

Professor THOMAS ANNANDALE, of Edinburgh, Scotland, had come to the conclusion that if an operation is to be performed for the relief of prostatic obstruction, the perineal operation is the best. This allows of examination of the bladder, permits drainage, and probably causes a diminution of the hypertrophy. It enables you to occasionally remove a portion of the enlarged prostate when this assumes a pedunculated form. The speaker exhibited a rubber tube which he had found useful in cases of Harrison's operation when a permanent tube is required.

Mr. ARTHUR DURHAM, of London, England, emphatically indorsed what had been said in regard to operation for stone, that no one operation is applicable to all cases. It is a great mistake to be men of one method, especially in surgery. When we hear a man say that he treats all his cases of fracture in such a way, all his cases of stone in such a way, and all his cases of prostatic disease in such a way, we may be sure that such a man has a very small practice and experience, or else is a very great fool. In cases in which stone in the bladder is complicated with enlarged prostate, the perineal incision seems to me to be better than the supra-pubic.

Professor HINGSTON, of Montreal, Canada, believed that the supra-pubic operation was one to be performed only in exceptional cases. These he classified as follows: 1. In those cases of stricture in which the obstruction cannot be overcome in time to relieve the patient of great suffering. 2. In cases of prostatic obstruction. 3. In cases of tumors of the bladder which would interfere with the lateral operation. 4. In cases where the stone is too hard or too large to be removed either by lithotrity or by lateral lithotomy. He had himself removed, without injury to the soft parts, a stone weighing five ounces and five drachms.

Sir WILLIAM MACCORMAC, of London, England, had performed the operation of supra-cystotomy occasionally. He had never seen any untoward consequences, and the operation seems to be devoid of all risk. He did not consider that drainage was necessary after this operation. The bladder empties itself freely and the drainage-tube is a source of irritation.

The President, Professor D. HAYES AGNEW, being called upon, said the ground had

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been so thoroughly covered that there was little to be added. He agreed with those who held that no single operation was applicable to all cases. The supra-pubic operation may be appropriate in certain cases, while in others the perineal operation is the proper one. In order to avoid the unpleasant consequences which occasionally follow the perineal operation in children, where the prostate is small, I avoid the introduction of the finger into the bladder, and remove the stone with forceps not much larger than the staff.

While there may be no danger in the supra-pubic operation in skilled hands, yet with the inexperienced operator there will be risk of opening the peritoneal cavity. He thought that a number of cases had been reported of rupture of the bladder following injection of the organ after dilatation of the rectum with the rubber-bag.

The following are the officers of the Association for the following year: President, Dr. D. W. Cheever, of Boston; Vice-Presidents, Dr. T. W. Richardson, of New Orleans, and Dr. John B. Roberts, of Philadelphia; Secretary, Dr. J. R. Weist, Richmond, Indiana; Treasurer, Dr. P. S. Conner, of Cincinnati; Recorder, Dr. J. Ewing Mears, of Philadelphia; Additional Members of Council, Dr. W. F. Peck, of Davenport, and Dr. S. W. Gross of Philadelphia.

The next meeting to be held, beginning the second Tuesday in May, 1889, at Washington.

Dr. WILLIAM T. BULL, of New York, presented a communication on "The Surgical Management of Typhlitis and Perityphlitis."

Dr. J. EWING MEARS, of Philadelphia, read a paper on "The Propriety of Surgical Interference in Perforating Typhoid Ulcer."

THIRD DAY.

Dr. GEORGE W. GAY, of Boston, read a paper entitled "The Comparative Methods of Tracheotomy and Intubation in the Treatment of Croup," of which the following were the conclusions:

1. Intubation may be tried in all cases of croup.

2. It is preferable in young children and in cases in which the tube must be left entirely to itself.

3. It may be resorted to for euthanasia provided the operator is reasonably expert and can do it without producing collapse.

4. Tracheotomy is called for in those cases in which intubation can not be done, or in which it fails to give relief, or in which the laryngeal tube is repeatedly rejected, or requires frequent removal for cleansing. It may also be required in those cases in which sufficient food cannot be given while the O'Dwyer tube is in position. It is also preferable in cases situated at a distance from a surgeon capable of introducing the laryngeal tube.

5. The tracheotomy instruments should always be at hand in intubation in case of emergency.

Dr. H. H. MUDD, of St. Louis, said that intubation had been done as a precautionary measure in many cases in which tracheotomy would not have been thought of. Some of the good results of intubation are to be attributed to this fact. In most of his cases of intubation where the patient survived he had found it necessary to resort to tracheotomy; patients have recovered after tracheotomy where intubation has proved unsuccessful.

Professor THOMAS ANNANDALE called attention to the value of the introduction of a tube through the glottis in cases of operation about the throat where there was risk of suffocation or of hæmorrhage into the trachea.

Dr. HUBER, of New York, had performed intubation in ninety-four cases with recovery in thirty-seven. He does not operate early. He considers the internal use of bichloride of mercury as of equal importance as the intubation. There is occasionally an advantage in using a small tube with the expectation that it will be

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coughed out, and with it a portion of the membrane, and affording an opportunity for feeding while the tube is out.

Dr. T. F. PREWITT, of St. Louis, in one case of diphtheric paralysis, had, in order to avoid passage of fluid into the larynx, passed a catheter through the glottis and plugged the larynx with a sponge. This permitted the fluid to go into the œsophagus without risk of entering the trachea. After feeding, the sponge and tube were removed.

Dr. D. W. CHEEVER, of Boston, advocated the disuse of anæsthetics in cases of tracheotomy, provided proper assistants can be secured. The operation is not accompanied with much pain. By avoiding the anæsthetic many of the risks of the operation are avoided.

Dr. L. MCLANE TIFFANY, of Baltimore, read a paper entitled "Pregnancy and Operative Surgery—their Mutual Relations," of which the following were the conclusions:

1. Pregnancy is a physiological condition and does not contra-indicate a surgical operation.

2. During pregnancy temporary strain may be exerted on some organ, *e. g.*, kidney, inducing impairment of function.

3. A surgical operation upon a pregnant woman is to be conducted so as to avoid inducing abortion, in itself a serious accident.

4. The main cause of abortion after operation is sepsis.

5. The probability of sepsis after operation is increased if the patient is suffering from disease, either temporary or chronic.

6. Abortion may result from operation —shock, perhaps.

7. Hæmorrhage does not seem to induce abortion.

8. Union of fracture may be retarded by pregnancy.

9. Recorded cases show that the unborn child receives no evil impress when the mother is subjected to operation.

10. When a surgical operation upon a pregnant woman is under consideration, the function of all the patient's organs must be carefully investigated and regulated. An operation then conducted antiseptically may be expected to result as though pregnancy were not present.

Dr. J. EWING MEARS, of Philadelphia, thought that while pregnancy was to be be regarded as a physiological process in the native woman, it could not be considered in this light in the society woman. Another important point to be considered was whether the operation required was one of expediency or of necessity. In the latter case the surgeon must do his duty, let the result be what it may, but whether or not operations of expediency were to be performed on the pregnant woman was a question only to be decided by further experience.

Professor P. S. CONNER, of Cincinnati, reported a case of "Subcutaneous Operation for Anchylosis of the Knee," in a woman who, it was subsequently learned, was six weeks pregnant. The operation was followed by severe septic infection, but this did not interfere with the normal course of the pregnancy.

Dr. WILLIAM HUNT, of Philadelphia, raised the question whether or not in the case of inevitably fatal injury of a pregnant woman, as from burns, it was justifiable to run the risk of sacrificing the mother a few days sooner, when by so doing the life of the child might be saved, or must we wait until the last breath has left the body before making the incision.

Dr. R. B. BONTECOU, of Troy, reported the case of a rupture of an umbilical hernia in a woman seven months pregnant. The intestines were out four hours. They were then cleaned and replaced. The woman recovered and a healthy child was born one month later.

Dr. L. MCLANE TIFFANY, of Baltimore, thought that in the case suggested by Dr. Hunt there could be no question as to the propriety of operation. By so doing one life may be saved.

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Dr. N. P. DANDRIDGE, of Cincinnati, read a paper on "Nerve-Stretching."

The following conclusions were presented:

1. That nerve-stretching should be condemned in all forms of central disease, such as tabes, myelitis, etc.

2. That it offers little prospect of relief in tetanus.

3. That it should be regarded as a reliable method in cases of persistent neuralgia and peripheral paralysis of sensation in the extremities.

4. That stretching the facial is indicated in tic-convulsif.

5. That further trial is justified in reflex epilepsy.

6. That stretching the lingual should be tried in painful affections of the tongue.

7. That resection should always be preferred to stretching in the spinal accessory and in the branches of the fifth nerve except the lingual.

Dr. DE FOREST WILLARD, of Philadelphia, read a report of three cases of Nephrectomy performed for — 1, gunshot wound of the kidney; 2, tubercular disease of the kidney.

AMERICAN GYNÆCOLOGICAL SOCIETY.

SEPTEMBER 18.

The President, Dr. ROBERT BATTEY, of Rome, called the Society to order.

Professor FORDYCE BARKER moved to reconsider the action which had been taken at the last meeting, and to accept the report of the committee which recommended joining the Congress of American Physicians and Surgeons.

This was seconded and carried.

Professor Barker was appointed a committee to inform the executive committee of the Congress of this action of the Society.

Dr. HOWARD A. KELLY, of Philadelphia, read a paper on "Ureteritis, its Diagnosis and Symptomatology."

Catheterization of the ureters is a proceeding which is very useful in the diagnosis of disease of the ureters and the pelvis of the kidneys. Ureteritis is probably more common than has usually been supposed. While this method of procedure is of comparatively recent date the disease—ureteritis—was recognized years ago by Rayer and by Cruveilhier. It may be either descending or ascending; perhaps it is more commonly secondary and descending. It may also be ascending, following gonorrhœa and other diseases which affect the bladder. The ureter may also be diseased from the passage of renal calculi, and as a complication of many forms of disease of the uterus and its surroundings. Hence it is important that the functions and the condition of the ureters should be carefully ascertained in any suspicious case. These and other facts suggest that more careful study of renal and bladder troubles is now in order for scientific gynæcologists.

Examination of the ureters may be made by inspection, by palpation, and by catheterization. The first may be practiced by splitting the vesico-vaginal septum at the proper level, then turning the opening into the vagina, as suggested by Dr. Thomas Addis Emmet. This may be done by pressure from without, or by pressure through the rectum, as suggested by Dr. Polk. By palpation the course of the ureter is to be followed by delicate touch, compression being exercised both through the abdominal wall and the vagina. If the ureter is dilated, its course may not infrequently be traced by this means. The method of catheterization, is however, the most practical, and the method of Pawlik, that of freehand catheterization, is believed to be the most applicable.

In three cases of supposed bladder trouble he found that it was the diseased ends of the ureters which were causing trouble, the trouble disappearing when these were cured. Other cases were also narrated to prove the value of this method of procedure. The literature of this subject is not extensive and includes, in addi-

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tion to the papers of Pawlik and Simon, the theses of Bonnet and Chaumont, and the recent paper of Silbermann.

Dr. POLK found the subject one of great interest, and had given much time to its consideration, both upon the living and the dead subject. The method of examining the ureters which was most commonly referred to was Pawlik's. He had made many trials of it, but usually without much success. He had found more satisfaction in making a button-hole fistula at the base of the bladder as recommended by Dr. T. A. Emmet, and then by suitable pressure the ends of the ureters could be made accessible. In palpating for the ureter it is to be remembered that it is between the line of the uterus and the brim of the pelvis. For a catheter he preferred one of broad curve like a prostatic catheter, and after this had been entered another instrument should be passed into the rectum, with which the onward course of this instrument in the ureter could be traced.

Dr. H. T. BYFORD, of Chicago, had practiced palpation of the ureters in one hundred cases, desiring to find a simple method of determining its course. If the uterus is taken as a centre and the finger in the vagina be made to radiate from it along the pelvic roof, a line would at length be reached where a gentle resistance of a cord-like body would indicate the presence of the ureter. This line having been determined, it would not be difficult after a little practice to find the mouth of the ureter and introduce a catheter, the catheter being guided by the finger in the vagina.

Dr. W. H. BAKER, of Boston, thought that very few obtained sufficient skill to catheterize the ureters. He believed the method was of value, however, in enabling one to give a diagnosis as to the extent of diseases of the bladder, etc. It must not be forgotten, in all these manipulations, that there might be displacement of the ureter as had occurred in his experience.

Dr. H. C. COE, of New York, found in three autopsies that pressure was exercised upon the ureters two inches from their endings by cicatricial nodules which were associated with uterine disease. This condition might have caused dilatation of the ureters which would have admitted of their determination by palpation.

Dr. BACHE EMMET had found that as good results as by any method could be obtained as to determining the position of the ends of the ureters, by making a fistula in the base of the bladder, then pressing in the median line of the abdomen, then varying the pressure to one and then the other side. He believed that ureteral trouble complicated various uterine troubles, and that a diagnosis of pelvic disease could hardly be considered complete until the condition of the ureters was known. He did not believe that disease of the ureters was a very common complication of bladder disease.

Dr. KELLY, in closing, detailed the experiments of Tuchmann, Silbermann, and others in catheterization, and showed the value of the operation. He thought disease of the ureters could not be called uncommon, that it might be due to inflammatory deposits, displacements, etc., and that examination of these organs was eminently simple and practical.

Professor THOMAS ADDIS EMMET, of New York, presented a paper entitled "Cause and Treatment of Urethrocele."

This condition is generally considered as due to a loss of support in consequence of laceration of the perineum, but it is never found after first labors unless the rupture has extended through the sphincter ani. It always exists after serious double laceration of the cervix in consequence of severe labor, which may have been either rapid or tedious. The former is the more common cause, the latter sometimes acts as a cause when ergot has been given or when the labor has been instrumental. The trouble is usually in the lower or vaginal part of the urethra. In some cases the accident is doubtless prevented when

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a few ounces of urine are in the bladder during the expulsion of the head, the urine acting as a cushion and only being discharged as the space is required. This is contrary to the long accepted dictum that the bladder must be empty when the head is delivered. The laceration may be transverse or longitudinal, and a few fibres or many may be ruptured. There is seldom a rupture through the vaginal mucous membrane. Urethrocele must be differentiated from the thickened condition of the urethra in which there is no rupture. In urethrocele the length of the urethra is diminished, a pouch being formed in which the urine collects. Serious reflex symptoms may be excited by such a condition as is shown in a very aggravated case narrated in the paper.

Dr. PRIESTLY, of London, referred to a paper written by him in 1869, in which he referred to sebaceous cysts of the urethra which he thought formed a condition somewhat analogous to that referred to by Dr. Emmet in his paper. He thought such conditions as Dr. Emmet treated of might be due to other causes than labor; for example, a sebaceous cyst of the urethra which he had seen had arisen entirely independently of labor.

Professor SKENE, of Brooklyn, thought that cystocele and urethrocele were very apt to be confounded. In his experience it was not the lower portion of the urethra which was apt to be involved as the result of severe labor. Complete dislocation of the urethra, the latter being torn from its attachments at the pubic arch, was a more common accident of labor than the sacculated condition to which Dr. Emmet referred, and he believed the longitudinal or transverse ruptures of the fibres of the urethra to be relatively rare. The button-hole operation would be of no use in cases of dislocated urethra, but for the sacculated condition it would apply. Bozeman had described the dilated condition of the urethra following labor ten or fifteen years ago, and had suggested the opening of the urethra as a means of relief.

Dr. LUSK, of New York, had found Emmet's operation very efficient in a very troublesome case which had long been under his observation, and had, finally, been cured by Dr. Emmet. Since then he had performed the operation in several cases with great satisfaction.

Dr. KELLY referred to a case of urethrocele which had been reported by Dr. Skene Keith, and upon which he had performed Emmet's operation with marked success. Urethrocele should be differentiated from false urethrocele or pouting of the urethra, which was often caused by straining in urination.

THE AMERICAN OTOLOGICAL SOCIETY.

SEPTEMBER 18.

Professor J. S. PROUT, of Brooklyn, President, in the chair.

Dr. S. O. RICHEY, of Washington, read a paper on "The Primary Physiological Purpose of the Membrana Tympani," which appears elsewhere in this number of this journal.

Professor CHARLES H. BURNET, of Philadelphia, read a paper on "Chronic Purulent Inflammation of the Tympanic Attic." He claimed that the chief difficulty in the diseases of the attic consisted in the inefficient drainage caused by the intricate irregularities of the ossicles being involved in the suppurative process, and the smallness of the opening in the membrana flaccida. Relief was most readily obtained by the use of the tympanic syringe with solutions of peroxide of hydrogen or 5 per cent. carbolic acid, and the enlargement of the perforation when necessary, and possibly in some cases the removal of the ossicles—the malleus and incus.

Dr. SAMUEL SEXTON, of New York, read another paper on "Excision of the Drumhead and Ossicles for the Cure of Chronic Purulent Inflammation of the Attic of the Tympanum."

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In most cases of persistent otorrhœa the tympanic attic is the seat of disease, and it is difficult to reach it with remedies. Having some time since been impressed by the surgery of the joints, and reflecting on the resemblance of these cases to those of chronic joint disease, in the chronic muco-periosteal inflammation, caries of the bony walls, and synovitis of the articular surfaces of the ossicles, he had concluded to try the removal of disease structures, thus securing efficient drainage, from which he claims more satisfactory results are obtained.

In reply to a question relative to the danger of wounding the chorda tympani, Dr. Sexton confessed to having had some difficulties in this respect, but added that he thought in many cases calling for the treatment the chorda tympani was already destroyed.

Dr. GORHAM BACON, of New York, read a paper on "A Case of Cerebral Abscess Following Extensive Necrosis of the Temporal Bone. Operation. Death from Secondary Hæmorrhage." The patient was a man of thirty, had had chronic purulent discharge from left ear for two years. Polypi and granulations were removed through the external meatus, and a sinus was found leading upwards from the meatus. Left facial paralysis developed in a short time. An abscess was found above and behind the ear, the opening of which gave some relief. The mastoid region was explored, but no difficulty was found. Dr. Robert F. Weir then made an incision through the temporal muscle, and thrusting his finger through the track toward the base of the skull, relieved a pulsating swelling of about half an ounce of pus. Improvement followed for a short time, but soon became worse, and as a certain form of aphasia had developed, he said "yes, sir" to everything said to him. A counter opening was made in the region of Broca's convolution and a drainage-tube introduced. Secondary hæmorrhage occurred, supposed to have been caused by the drainage-tube pressing on and eroding the middle meningeal artery. Dr. Weir himself suggested that probably the drainage-tube was an error.

Dr. O. D. POMEROY, of New York, read a paper on "Chronic Suppurative Otitis, with Metastatic Irido-Choroiditis and Abscess on the Side of the Neck Communicating with the Tympanum." The patient was about fifty years of age, and was seen on account of iritis. Soon there was developed pus in anterior chamber. Paracentesis of anterior chamber did not prevent a perforation of the sclera in the upper part. After the eneucleation of the eyeball a stiffness in the neck, which had been previously supposed to be of a rheumatic character, revealed deep fluctuation.

An incision gave vent to several ounces of pus, and pressure caused the pus to appear also in the external meatus. Dr. Pomeroy concluded that the abscess in the ear was the origin of the trouble; that the swelling in the neck was an extension of the difficulty, and that the abscess in the eye was of a metastatic character.

Dr. J. O. TANSLEY read a paper on "Nasal Difficulties in Ear Disease." Reference was made to the various irregularities and swellings and hypertrophies in the nasal choanæ. The author advocated the removal of such abnormal conditions, either by the snare, saw, forceps, or galvano-cautery. He gave the preference to the cautery in the anterior part of the nose, and used the snare by preference for the removal of the posterior part of the inferior turbinated bones.

Dr. SAMUEL THEOBALD, of Baltimore, contributed a paper on the "Employment of Boracic Acid in Solution in the Treatment of Otis Media Suppurativa."

In the ordinary cases of chronic suppurative otitis media, in which there is usually extensive destruction of the drumhead, he uses boracic acid in powder, applying it by means of insufflation, but in acute cases and chronic ones, in which the destruction of the drumhead is not exten-

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sive, and in which closure of the perforation may be anticipated, he prefers to use a saturated solution of boracic acid.

The advantages claimed for the solution were that it was never irritating, often gave immediate relief, never blocked up the discharge of pus, and is more readily used at the patient's home.

Dr. GREEN read a paper by Dr. C. J. Blake, of Boston, "On the Influence of the Telephone on the Organ of Hearing"—a very technical paper, which involved a great number of personal observations relative to variations in vibration under different circumstances. The inference was that the persistent use of the telephone may be injurious to persons previously disposed to an affection of the ears.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

SEPTEMBER 19.

Professor HENRY W. WILLIAMS, of Boston, President pro tempore.

Professor DAVID WEBSTER, of New York, read a paper upon "Some Tenotomies for the Correction of Heterophoria, with Results."

He reported forty cases; twenty-five had been operated on but once, in sixteen a second operation was done, and three had previously been operated on by others, making a total of sixty tenotomies. The operations had been done since the beginning of July, 1886. A slight over-correction was usually aimed at and attained. In three cases a slight reduction of the effect was necessary. All operations were done under cocaine, and the eyes tested from time to time to determine when sufficient effect had been produced. In three hysterical males remarkably good results were obtained. Most of the operations were done for headache and asthenopia. The writer had reached the conclusion that no person should have a tenotomy done for heterophoria, without inconvenience probably due to it; very slight degrees may cause trouble and should be attended to. All other methods should be tried before tenotomy.

Dr. SAMUEL THEOBALD, of Baltimore, read a paper entitled "Is Astigmatism a Factor in the Causation of Glaucoma?" The author's experience led him to believe that when the meridian of least refraction was vertical, or approached the vertical, that more effort was made to correct the difficulty, greater hyperæmia of the ciliary muscle resulted, and the condition known as glaucoma precipitated.

Dr. PETER A. CALLAN, of New York, read a paper on "The Treatment of Ulcers of the Cornea."

The ulcers occurring in young persons and children are really phlyctenulæ of the cornea, or neglect of lid friction causing absorption which gives rise to an ulcer. The treatment is yellow oxide of mercury salve (two to ten per centum) placed between the lids once daily; atropia and cocaine if necessary; tonics, open air exercise, regulation of diet, airy sleeping quarters, smoked glasses, avoidance of dark room or bandages.

He gives preference to the circumscribed application of a 2 per centum solution of nitrate of silver to the ulcer alone.

Dr. EDWARD JACKSON, of Philadelphia, read a paper on "Meridional Astigmatism." By this was meant the difference in refractive power of the same meridian as examined at the centre of the pupil or at the margin. He found considerable difference in this respect in different individuals, and thought a good deal of the difference which was found in the same individuals, according as they were or were not under the influence of atropia, due to this factor. There was some objection made to the term used by the author, as it is impossible to exclude the feature of dispersion.

The committee, composed of Doctors Edward Jackson, Henry D. Noyes, and Swan M. Burnett, appointed to consider the proposition to designate prisms according to their refractive power recom-

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mended the indorsement of the following propositions:

First. Prisms ought to be designated by the number of degrees of minimum deviation they produce.

Second. Where intervals of less than one degree are desired half degrees and quarter degrees should be used.

Third. To indicate that degrees of deviation are meant, the letter "d" shall be added. Thus, "prism 2°d" will indicate a prism that produces a minimum deviation of two degrees.

Dr. J. O. TANSLEY, of New York, exhibited the ordinary long box with glass sides and lenses, which, when filled with smoke, shows, by the aid of the lantern, the general principles of refraction and reflection.

Dr. W. F. MITTENDORF, of New York, read a paper on "Acute Cocaine Conjunctivitis." The notes of three cases were recorded. The affection was characterized by a swollen, shiny appearance of the conjunctiva associated with profuse acrid discharge. It was shown by the use of different salts of the same alkaloid and the special care taken with the preparation of the solution that the irritation was due to the cocaine itself. Several members had recognized similar conditions in certain cases after the use of cocaine solutions. Dr. Mittendorf suggested that it may be due to the influence of the cocaine in paralyzing the terminal fibres of the sympathetic.

Professor S. M. BURNETT, of Washington, exhibited some apparatus for diagnosis of refraction. This consisted of a disc of lenses to be used in applying the shadow test, arranged to be fixed to the wall and adjustable to any height, and readily used for either eye, or swung out of the way when not in use.

The object of the device is to facilitate the process of skiascopy. Attached to the centre of the disc is a tape-measure to determine the distance at which the observation is made.

Dr. CARL KOLLER, of New York, read a paper on "Blepharospasm." He referred especially to that form of blepharospasm which was a reflex irritation of the terminal nerve fibres in the cornea and conjunctiva. Such cases often revealed a fissure situated in a fold of skin which extends outward from the external canthus. The chief object in view in the treatment of such cases should be the relief of the external fissure.

Dr. R. H. DERBY reported a case of "Recurrent Monocular Optic Neuritis," with recovery. The remedies used were iodide of potassium and mercurial inunctions.

Dr. O. D. POMEROY reported his experience with the bident of the late C. R. Agnew, using by preference the modification suggested by Dr. Andrews. He spoke very favorably of the instrument and gave a word of caution against pushing the lens too far forward. He extracts the lens with a sharp hook or spoon.

AMERICAN ORTHOPEDIC ASSOCIATION.

Second Annual Meeting, held at Washington, D. C., September 18, 19, and 20.

FIRST DAY—Morning Session.

The Association met, and was called to order at ten o'clock by the President, Dr. NEWTON M. SHAFFER, of New York.

The Secretary, Dr. LEWIS HALL SAYRE, of New York, read the minutes of the preliminary meeting, which were approved.

Professor V. P. GIBNEY, of New York, read a paper on "The Treatment of Club-foot by means of the Thomas Wrench, or T. T.," and presented an apparatus.

FIRST DAY—Afternoon Session.

Dr. H. HODGEN, of St. Louis, read a paper on "Morton's Operation for the Immediate Reduction of the Club-foot," and reported five cases of congenital equinovarus, three of which were double.

His deductions were: 1. Tenotomy for equinus should be made first and the de-

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formity at once reduced. 2. Immediate reduction of the deformity is the proper procedure. It saves time, pain, and the correction is more certain. 3. It can be used in all cases with safety, but has no advantage over hand-pressure of the surgeon in young subjects when the tissues are soft. 4. There is no need of preparatory treatment of the tissues by poulticing. 5. The force should be applied inwards, downwards, and slightly forwards, until the tissues are ready to give way. 6. Plaster dressing, applied with the foot in position of varus, and allowed to remain for two months. 7. The bursæ will have nearly disappeared when the cast is removed, and they are not as a rule tender. 8. The use of a club-foot shoe for some time, in which pressure can be made in the direction of the crushing force. 9. A marked rise of temperature is not to be expected, and when this and pain are present one must look to the plaster as the cause in a large per centage of these cases.

This was followed by a paper entitled "A Practical Point in the Treatment of Pott's Disease of the Spine," by Dr. A. B. JUDSON, of New York.

He believes that in the unsatisfactory state of the treatment of Pott's disease it would be well to judge of the efficiency of mechanical treatment by the impression made by the apparatus on the skin, which should be kept dry, covering the projection. The object of treatment is three fold—to fix the diseased bones; to transfer pressure from the bodies to the processes, and to reduce the deformity. If the skin near the summit of the projection becomes thickened and callous, which it does without discomfort if the pressure is carefully increased from time to time, it is to be considered that the apparatus is acting as it ought to, and when the great pressure is made compatible with the integrity and comfort of the skin, the apparatus has reached the limit of its efficiency. This rule is less applicable to the treatment by suspension and the plaster-of-Paris jacket. In the hands of the general practitioner plaster of Paris gives relief to many cases which would otherwise have no mechanical treatment. But the orthopedic surgeon can do better by the use of tractable steel, modified to fit the varying needs of the patient with the mechanical skill which belongs to practitioners of that class.

Dr. E. H. BRADFORD, of Boston, presented an "Analysis of Treatment of Seventy Cases of Club-foot."

He said the treatment necessarily requires:

1. The rectification of the misplaced bones.

2. Retention in a normal position until the abnormal facet of the astragalus renders the pressure of a new position normal.

The following questions in regard to treatment are at present unsettled:

a. In what cases is it advisable to correct and treat by mechanical means alone, without the aid of any operative interference, even tenotomy?

b. When is tenotomy advisable?

c. Can severe cases be entirely corrected and permanently cured without tarsal resection?

d. Is tarsal resection or osteotomy a justifiable operation?

His conclusions were:

1. That the cases of infantile club-foot can, as a rule, be thoroughly and efficiently treated without tenotomy by mechanical correction and mechanical retention alone.

2. That in older cases tenotomy aids the correction, and is not injurious in the permanent result.

3. That resistant cases of the severest type can be corrected without tarsal osteotomy.

4. That in some cases of resistant club-foot tarsal osteotomy is needed for perfect rectification, and is not only justifiable, but may be indicated in exceptional instances.

Dr. G. W. RYAN, of Cincinnati, reported a case of reflex valgus.

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SECOND DAY—Morning Session.

Dr. ROYAL WHITMAN, of Boston, read a paper entitled "Observations on Seventy-five Cases of Flat-foot, with Particular Reference to Treatment."

Clinically, flat-foot is an affection which, in the majority of cases, occurs independent of local or constitutional disease. The direct cause is overweight or overwork for feet subjected to mechanical disadvantages. These are (1) the common habit of turning on the toes in standing and walking, an attitude which brings an increased and continual strain on the weakest part of the foot. (2) Weakness of muscles from disease, and deformities caused by improper shoes. Flat-foot being essentially a dislocation should be treated as other dislocations, by reposition and retention in normal positions, until by exercise and avoidance of faulty position the muscles may regain their normal strength. In ordinary cases such retention can only be accomplished by some form of mechanical support. A brace should be constructed on principles somewhat as follows: It should be inelastic, light, and comfortable; should fit the foot perfectly, and should not interfere with its normal movements, or the action of its muscles. A steel brace designed on these principles was shown. The paper was illustrated by casts and diagrams.

Dr. JOHN RIDLON, of New York, exhibited a wrench which he used for the same purpose as that exhibited by Professor Gibney, it being modified from a "utility" wrench. It differed from Thomas' and Gibney's modification of Thomas' wrench in that the grip was taken by sliding the lower grip-bar towards the upper simply by manual pressure. When in position it was held by a cog-and-spring arrangement which could instantly be released by pressing a trigger. The grip-bars were straight, instead of curving towards each other as in the Gibney instrument. This was an advantage when the instrument was used as an osteoclast in cases of badly united Colles' fracture of the radius. As an instrument for cases of club-foot the author did not think it had any special advantages over Thomas' wrench.

Dr. AP. MORGAN VANCE, of Louisville, read a clinical report of eight cases of femoral osteotomy for the correction of deformity resulting from hip-joint disease in five of the cases, and knee-joint disease in the remaining three. He advocated the subcutaneous method as being better than the other operation by open wound, stating that he would break a man's femur subcutaneously with as little misgivings as to the outcome as he would divide his tendon Achilles. All of the cases reported had practically reached adult life, the youngest being 14½ years of age, the oldest 32.

SECOND DAY—Afternoon Session.

The PRESIDENT exhibited Colin's osteoclast to the Association.

Dr. HENRY L. TAYLOR, of New York, read a paper on "Senile Coxitis."

By senile coxitis he understood a rheumatic affection of the hip-joint, occurring in old people, and characterized by pain, stiffness, muscular spasm, and disability, but never showing a tendency to suppuration. It may or may not be associated with similar trouble in other joints. The point he makes is that some of the cases which have resisted the ordinary medicinal and dietetic treatment, and in whom the hip-joint disorder is of such a grade as to practically incapacitate them from locomotion, may still be very much benefited and the comfortable use of the limb restored by resorting to mechanical treatment.

He cited two cases in females about 57 years old, suffering from senile coxitis of disabling grade; in one, the disease was non-articular; in the other, several joints were affected in addition to the hip. In the first, although the disease has lasted eight years, hip trouble had never before been suspected, as the pain and lameness were referred to the knee. These patients were put to bed from four to six weeks,

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with the long counter-extension hip-splint and sixteen to eighteen pounds extra weight, and were then allowed to get up on the jointed supporting splint with perineal strap, which protection was kept up for about two years, with subsidence of active symptoms in the joint and restoration to comfortable, unaided locomotion. So far as heard from they continued well.

Dr. BENJAMIN LEE, of Philadelphia, read a paper on "Hæmatoma Oris as a Sign of Injury to the Spine in the Superior Cervical Region."

His conclusions were: (1) That this pathological condition is idiopathic, never traumatic. He would not deny the existence of such a condition. It has a *facies* and history of its own. The same amount of violence would probably produce an extravasation of blood in the tissues of the ear in an insane person, but that would not be the "insane ear." (2) That the local tissue-change which makes an extravasation possible is dependent upon a degenerative alteration in the nerve centre which controls the circulatory apparatus of the auricle, involving, or not, the larger arterial branches.

This paper was followed by one on "Osteotomy for Anterior Tibial Curves," by Dr. DE FORREST WILLARD, of Philadelphia.

Rickets, although a constitutional disease dependent upon mal-assimilation and malnutrition, yet exhibits its worst phases in deformities of the bones.

Anterior tibial curves are among the most frequent of these distortions.

Treatment: (1) Manual straightening and the employment of suitable apparatus. This may be successful in young children with the bones still springy, but in all other cases it will utterly fail, and time and money will be wasted.

Braces are useful in laterally bowed legs, but not in anterior curves.

2. Forcible fracture: *a*, manual; *b*, instrumental.

a. Manual fracture. A strong surgeon can usually break the bones of a child under 3 years of age, especially if the knee be brought into use as a fulcrum, but the point of fracture is uncertain. The result is a simple fracture.

b. Osteoclasis. The osteoclast applied to the thigh is a definite and comparatively certain and exact instrument in determining the point of fracture, but in the leg the sharp tibial edge renders the employment of much force a dangerous procedure as regards the life of the soft parts.

3. Osteotomy: *a*, simple; *b*, cuneiform.

a. Simple section of the bone with the osteotone, although it produces a compound fracture, is, practically, almost subcutaneous, and if done with thorough asepsis, is rarely followed by suppuration. It is applicable to all except the very worst cases of deformity, since even sharp angles of bone are speedily inclosed in the callus. Suturing of the divided bone is rarely necessary.

b. Wedge-shaped osteotomy is applicable to severer grades of deformity. This operation is much more likely to be followed by suppuration, but with strict asepsis such an accident is rare. Plaster of Paris furnishes the most convenient form of after-splint.

Osteotomy offers the simplest, surest, and most satisfactory results in anterior tibial curves.

Illustrative cases were described and the details of the antiseptic operation fully enumerated.

Dr. A. J. STEELE, of St. Louis, read a paper on "Two Knee-joint Excisions."

In these cases he had done excision of the knee, the first in a lad with chronic fungoid and suppurative joint-disease which had been going on from early childhood. The second in a young woman with right-angled anchylosis of nine years' standing, resulting from injury, and doubtless subsequent to acute synovitis. In the first case the joint was rapidly going on to destruction and the constitution breaking

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down; in the second, the inconvenience in walking prompted measures for relief.

It was hoped arthrectomy alone might afford the required relief in Case I, but on exposing the joint the serious bone involvement prompted its removal. Antisepsis was used, all diseased tissue removed, including the patella, the bones pinned together with steel nails, and permanent dressings applied. Subsequent oozing caused change of dressing to a bracketed plaster-of-Paris splint, with suspension. Union was rapid and constitutional improvement prompt. At the present time, three months since the operation, the boy is in robust health and about on crutches, wound healed, bones firm, and limb straight. The removed eroded bones, the pins used, and photograph of limb, were shown.

In Case II strict antisepsis was not observed. The joint was removed *en bloc*, leg straightened and bones doweled together with four needles, the ordinary crotchet, a bracketed wire-splint applied, and the leg suspended; no untoward symptoms occurred and little or no pus found. One bone-pin was removed about the fourth week, the other one breaking off in the bone. It was expected this piece left in would soften and be absorbed. For a time it seemed to cause no irritation, but after three months it caused suppuration, came to the surface and was picked out, being quite eroded. At the present time, eight months since the operation, the patient is walking, usually without even the assistance of a cane, on a three inch patten, and with scarcely a limp.

Dr. W. R. WHITEHEAD, of Denver, read a lengthy paper entitled "Remarks on the Operative and Mechanical Treatment of some Joint-Diseases and Injuries, with Special Reference to the Hip, Knee and Elbow Joints, with Illustrative Cases."

Dr. R. W. LOVETT, of Boston, read a paper on the "Treatment of Hip-Joint Disease by Fixation and Extension, with the Exhibition of a New Splint."

He said American traction splints are criticized by English surgeons on the ground that they afford imperfect fixation. With a view of determining how much fixation traction alone affords, some experiments were made upon a healthy child. It was found that with four pounds traction, exerted by means of a hip-splint with one perineal band, in walking 35° motion at the hip-joint took place. With the highest endurable traction (8 lbs.) 15° of motion took place. Evidently traction alone cannot afford fixation to a diseased joint. It does not seem likely, either, that it separates the joint surfaces, inasmuch as in the case experimented on the power of the thigh muscles was roughly estimated to be 36 pounds. With all this force, when set in muscular spasm, they would pull the head of the bone against the acetabulum with more than that power, and the antagonizing force is only eight pounds at most.

Experiments as to distraction upon the cadaver do not reproduce the clinical conditions, inasmuch as muscular spasms, the most important factor of all, is left out of account.

A hip-splint providing fixation as well as traction was shown, being merely a slightly modified combination of the English Thomas splint with the American traction splint. Its best use is in bad cases where any joint-motion does harm, and in cases where deformity is present, inasmuch as it is possible to correct the deformity while the child goes about on crutches.

Dr. SAMUEL KETCH, of New York, read a paper on "Lateral Curvature and its Early Treatment."

The Association then elected the following officers for 1889:

President—E. H. Bradford, Boston.

First Vice-President—Benjamin Lee, Philadelphia.

Second Vice-President—V. P. Gibney, New York.

Secretary and Treasurer—R. W. Lovett, Boston.

Next place of meeting, Boston, in September, 1889.

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AMERICAN RHINOLOGICAL ASSOCIATION.

First Day—Morning Session.

The sixth annual meeting was held at Cincinnati, Ohio, September 12, 13, and 14.

The Association was called to order by the President, at ten o'clock.

Dr. A. B. Thrasher, of Cincinnati, delivered an address of welcome, after which the President delivered the annual address, in which he recalled the progress that has been made in rhinology.

Dr. J. E. Schadle, of St. Paul, Minnesota, read a report of "A Case of Chorea of the Soft Palate, caused by the Hypertrophy and Hyperæsthesia of the Mucous Membrane Covering both Inferior Turbinated Bodies."

He said some forms of headache and of spasmodic asthma are, in many instances, the outgrowth of a nasal polypus, a turbinated thickening, or a septal deformity. These reflex neurotic disturbances disappear after appropriate measures of treatment have been directed towards the removal of their cause.

A patient was examined by Dr. Shadle on April 16, 1888. She suffered from constipation and flatulency quite frequently. The heart's action was more or less excited; the heart beat tumultuously when ascending a flight of stairs, or some other elevation. She complained of marked obstructed nose-breathing; her voice was impaired, especially when singing. The principal difficulty for which she was sent to him was the spasmodic movement of the velum palati.

Faucial examination revealed distinct rythmical choreiform movements of the velum palati, accompanied by a peculiar clicking sound, distinctly audible for a distance of twelve or fifteen feet from the patient. Anterior rhinoscopic examination revealed chronic hypertrophy of the inferior turbinated bones, more especially the middle one, whose redundant tissue caused pressure on the septum and produced obstruction of the middle meatus.

Treatment was mainly surgical. Snaring was impracticable. By the use of Cohen's post-nasal cutting forceps and the electro-cautery, he reduced the growth entirely, the procedure being followed by cessation of the choreiform movements.

Afternoon Session.

Dr. Thos. F. Rumbold, of St. Louis, Missouri, read a paper on "The Etiology and Pathology of Nasal Diseases." The etiology of a disease is of the greatest import. A perfect understanding of its causes and its mechanism is the goal of the pathologist. As regards heredity in the causation of rhinitis, he had long been convinced that such a theory was erroneous. The histological facts concerning cell-life would prove a successful contravention of the theory of heredity.

Second Day—Morning Session.

A paper entitled "The Relation of Nasal Diseases to Other Affections, Including the Brain and Nervous System," was read by Dr. John North, of Keokuk, Iowa.

There is no organ, he said, in the entire body that has been so neglected as the nose. Obscure and obstinate diseases have not yielded to treatment because it has been directed to the effect of nasal reflex troubles and not to the nose, the cause of the trouble.

He claimed that in 1886 he had shown almost conclusively that certain cases of neurasthenia were the result of chronic naso-pharyngeal catarrh, and reported several cases to substantiate his argument, and which yielded to treatment applied to the naso-pharynx.

Dr. Thos. F. Rumbold read a paper on "The Effect of Nasal Inflammation on the Mind." A normal condition of the mind depends upon a normal supply of blood to the normal brain. If an acute inflammation in the nasal passages is accompanied by mental manifestations, mental incapacity

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of a more severe character must accompany a chonic rhinitis.

A paper was presented on "The Etiology and Pathology of Acute Catarrh," by Dr. J. G. CARPENTER, of Stanford, Kentucky.

Among the most prominent causes, he mentioned occupations attended with dust, smoke, excessive moisture, or dry, dusty atmosphere, going about insufficiently clad, the evil results of ordinary slippers, etc.

Pathologically, acute catarrh is divided into three stages: (1) The dry stage, attended with hyperæmia, redness, heat, tumefaction, and pain of mucous membrane, the latter presenting a rèd, dry, or dark-red appearance. (2) Moist stage, supplementing the first; there is transudation of serum, diapedesis of the white corpuscles into the connective tissue, cell-proliferation, and organization of lymph. (3) The presence of pathological conditions, with denudation of the epithelium and the presence of a raw surface, and the excessive mucous secretion is changed to a muco-purulent or purulent one.

AFTERNOON SESSION.

Dr. R. S. KNODE, of Fort Wayne, Indiana, read a paper on "Intra-Nasal Obstruction."

He said, of all the mucous surfaces that of the nose is perhaps the most sensitive to irritating gases, vapors, and dust of different kinds, as well as sudden changes of atmosphere. Intra-nasal obstructions may be temporary or permanent, partial or complete, owing to the extent of inflammation or injury that produces them. Temporary occlusion is usually the result of some one of the forms of acute rhinitis. From severe attacks, or from the effects of repeated colds, the membrane may be found overwhelmed with plastic material, with a loss of nerve power, a pale, flabby, wrinkled condition, somewhat resembling polypus, but more sensitive to the touch, and completely filling up both cavities of the nose. In this condition he had found nothing to act as promptly as to first use a solution of cocaine, applied with a probe and cotton, and followed with mildly stimulating solutions of chromic acid, ten grains to one ounce, after which the vaseline treatment should be used. If stenosis should return, a second application of the acid may be made, or slippery-elm plugs, slightly moistened with a weak preparation of cocaine and listerine.

Dr. E. G. KEGLEY, of Cedar Rapids, Iowa, reported "A Case of Enlarged Tonsils, with Peculiar Symptoms, Relieved by the Galvano-Cautery Snare."

The patient was 43 years of age male; first consulted him in January, 1888, with regard to a trouble which the patient termed "drooling." He presented the appearance of one suffering from hay-fever. His eyes were red and swollen, with excessive lachrymation, constant flowing and wiping of the nose, and spitting of clear fluid. Examination revealed the nasal mucous membrane highly congested, and completely closing the nasal passages. The patient's mouth was constantly filled with saliva, and tonsils enormously enlarged, filling the back part of the mouth and throat. Dr. Kegley cocainized the tonsils and removed them both at one sitting by means of the galvano-cautery snare, the patient having experienced no pain whatever. He saw the patient the next day, who said the trouble had ceased almost simultaneously with the removal of the tonsils. He has had no further trouble.

THIRD DAY—MORNING SESSION.

Dr. A. G. HOBBS, of Atlanta, Georgia, read a paper on "The Surgery of Gummatous Growths of the Nasal Cavities," and reported four cases. In the first case he cocainized the nasal passages with a 5 per centum spray, then attempted to introduce a Blake's snare, but found it impossible to engage the tumor in the loop. He therefore introduced a cutting spoon, and

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several large masses of the growth were cut away. Four more sittings, at intervals of three days, enabled him to remove the growth entirely. The patient has completely regained her health.

AFTERNOON SESSION.

Dr. A. B. THRASHER, of Cincinnati, read a paper on "Surgical Treatment of Nasal Catarrh," in which he said that there are forms of nasal catarrh that can only be benefited, and not cured, by medicinal treatment. When we have mechanical obstructions to the lumen of the naris of a hypertrophic, hyperplastic, or neoplastic character, surgery offers the most direct path for the removal of the difficulty. What is the best method of procedure? There are cases in which the application of a chemical caustic answers the purpose well. Woakes' gouge or plow will do the work, and by the aid of cocaine will do it rapidly and painlessly.

In uncomplicated cases of chronic hypertrophic rhinitis, the conditions to be met are: (*a*) Obstructions to lumen of the naris, and (*b*) abnormal condition of mucous glands. The causal indications would at once suggest removal of the redundant tissue. The means employed should look to the accomplishment of this end, and with the least resulting scar-surface, so that the natural condition of the epithelial covering might be as nearly as possible simulated. To reach this result he had met with the most marked success in the use of the galvano-cautery knife. He first anæsthetizes the part with cocaine, then introduces the knife to the posterior part of the hypertrophy, turns the sharp edge toward the tissue to be cut, heats the knife white hot, and cuts deeply, drawing the knife forward. The result is a deep linear scar in an antero-posterior direction through the hypertrophied tissue. He cuts deeply enough to destroy a portion of the submucous erectile tissue.

After electing officers and selecting Chigago as the next place of meeting, in September, 1889, the Association adjourned.

INTERNATIONAL OTOLOGICAL CONGRESS.

The Fourth International Otological Congress was held in Brussels, Belgium, September.

There was a large attendance of representative otologists, and the many countries represented made it markedly international in character. Several American otologists were present. Dr. Ch. Delstanche, of Brussels, presided.

Professor GRADANGA, of Padua, Italy, made a report of extensive investigations on the *development of the auricle.*

Professor POLITZER, of Vienna, Austria, reported the results of investigation of the pathology of middle-ear affections.

Dr. RÖHRER, of Zurich, Switzerland, in a paper presented, discussed "Rume's Experiment in Diseases of the Labyrinth."

Dr. GELLÉ, of Paris, France, gave a description of his researches on binaural reflexes.

President DELSTANCHE read a paper on "The Treatment of Sclerosis of the Middle Ear."

Dr. BARR, of Glasgow, Scotland, described some of Dr. Macewen's operations of trephining in cases of cerebral abcesses, and drew attention to possible advantages in such cases arising in ear diseases involving the brain.

Dr. BABER, of Brighton, England, presented the subject of nose and ear diseases produced or aggravated by excessive use of alcoholic beverages.

The fifth congress is to be held in Florence, Italy, in 1892.

Questions proposed for discussion in the next congress include—pathological anatomy of the internal ear, diagnosis and treatment of abscesses of the brain due to diseases of the ear, and constitutional treatment in ear disease.

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CHICACO MEDICAL SOCIETY.

STATED MEETING—July 2, 1888.

The President, J. H. ETHERIDGE, M.D., in the chair.

Dr. J. G. KIERNAN read a paper entitled, "The Mental Symptoms of Heart Disease as an Element in Prognosis, as Illustrated in the Case of Matthew Arnold."

Very frequently an account of death from cardiac failure is preceded by the statement that the deceased was in "unusually high spirits just previous to death, which occurred after unusual exertion." Cases of this kind occurring so frequently naturally raise the question whether this "high spirits" be not the expression of a pathological state. To answer the question is not easy.

Griesinger many years ago called attention to the fact that an emotional variability existed in many sane persons with cardiac disease. Very little attention has been paid to this observation, which would be somewhat astonishing, since the state described is far from infrequent, were it not for the fact that mental phenomena arising from ordinary somatic disease are very little studied—in fact, are pretty generally ignored. To form any idea of the influence of cardiac disease we are therefore forced to study the insane, since the mental phenomena arising in them from any given somatic cause are simply exaggerations of minor mental phenomena of the same type found in the sane affected with the same disease.

For example, Griesinger speaks of a slight emotional mobility which is peculiar to many healthy persons affected with heart disease.

The relations between insanity and cardiac disease are, like the other somatic relations of insanity, three-fold in character: The cardiac disease produces insanity; it is affected by insanity, and it affects pre-existing insanity. The first question naturally arising for consideration is the influence of cardiac disease in the production of insanity. This was much overestimated by Nasse and the early alienists In a general way it may be said that the types of insanity resulting from cardiac diseases are usually characterized by suspicion and emotional mobility.

Griesinger says that a certain etiological influence must always be attributed to cardiac disease, but there is no special frequency in the occurrence of this influence which shows itself in an exaggeration of the normal emotional mobility of cardiac disease in suspicion and depression. Luys says that the symptoms of the psychoses arising from cardiac affections are excitement and loquacity, followed by more or less prolonged somnolence. In certain cases when the cardiac affection shows itself in periodic attacks of dispnœa with extreme respiratory anxiety, there is an equal periodicity in the appearance of psychical symptoms which show themselves at the height of the respiratory anxiety and disappear with it. Hertz has had similar experience. Burman, Savage, and Dickson have noted similar phenomena, and these are also laid stress upon by Mickle in his recent lecture.

P. Macdowell says, "We may accept it as a general, though not a constant, rule, that mitral disease produces symptoms of melancholia, and aortic lesions more frequently those of a maniacal type."

Dr. Alice Bennett has found that emotional mobility and suspicion characterize the mental phenomena of cardiac disease.

D'Astros has observed that the patients with aortic disease display very frequently an extreme impressionability, a variable, capricious, and fantastic character, and exaggerated susceptibility. The patients with mitral lesions are somewhat self-contained, and reticent. They are depressed, taciturn, and manifest a *tædium vitæ*, and are at times plunged into extreme depression. Mildner has reported cases in which cardiac insufference were accompanied by emotional exaltation, followed by suspicion and furor.

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Sibson says "that the chief psychical symptoms presented are depression; sometimes the patient was taciturn; sometimes having hallucinations, and sometimes displayed lypemaniac frenzy."

Morel has observed in patients attacked by paroxysmal dyspnœa resulting from cardiac disease, the periodical return of strange ideas, hypochondriacal sensations, and hallucinations of a depressing nature. Krapelin states that disease of the heart exerts a peculiar influence on the types of insanity which occur during acute rheumatism, causing them to be of an emotional, suspicional type.

Spitzka holds that the view that cardiac hypertrophy of the left side with aortic valvular lesion is more apt to be associated with maniacal conditions, and cardiac hypertrophy of the right ventricle with mitral valvular lesion with melancholic states, is supported by too few observations to merit acceptance; the blood pressure in recorded cases was not registered, hence these are destitute of value. The heart has important and direct relations to the brain, and it is very likely that just as disturbances of the vagus inervations are responsible for the *raptus melancholicus*—in other words, just as a disordered state of the brain reacts on itself through the medium of the functional cardiac influence it produces—so a valvular lesion may directly influence the emotional states without pre-existing brain trouble. It is a fact that patients suffering from cardiac lesions are more likely to develop anxious and suspicious delusions than those of an opposite nature. Forbes Winslow expresses similar opinions. My own experience agrees with D'Astros and Griesinger in regard to the influence of cardiac disease on insanity. Spitzka very correctly says that the mental phenomena produced by it furnish a rich pabulum for delusion.

That insanity produces cardiac disease is demonstrated by the experience of Salemi—Pace and Milner Fothergill to point out that in states of emotional exaltation cardiac murmurs, especially of the aortic valves, are frequent without valvular lesion.

Griesinger points out that in conditions of exaltation murmurs, particularly of the aortic valves, are very frequent without coincident valvular lesion. He states that observations in the Vienna asylum show that during maniacal conditions the heart sounds are indistinct during great excitement, and become clear when calm sets in.

My own experience is not only in accord with this, but I have also noticed that in the cataleptoid state of katatonia temporary murmurs result. These facts have a direct bearing on the prognosis of the disease. Mental and physical quiet is urged on almost every sufferer from cardiac disease. For a long time such advice is observed. The suspicional state raising from the disease and the long continued relief from untoward symptoms resulting from this rest predisposes the patient to take a different view of the state of things from his physicians. When emotional exaltation results from disease, there are but few checks on the patient to restrain his indulgence in exuberant horse-play. These features are well illustrated by the case of Matthew Arnold. Matthew Arnold came from a well-balanced English family, one of those old English families who have learned to restrain emotion. His father, the head of the famous school at Rugby, which Tom Hughes has immortalized, was also a sufferer from cardiac disease, but old Dr. Arnold was very favorably situated; he was in a position to lead a regular, uneventful life. His course of study and course of life was laid out for him, and he was held in high esteem by those by whom he was surrounded. For that reason he died well advanced in years and universally regarded as a gentleman of peculiar sweetness of temper, amiability, and exactness in all particulars. Many of these traits were noticeable in his son, Matthew Arnold, who has just died. He called himself peculiarly the "Apostle of Sweetness and Light."

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He preached to a certain extent a philosophy somewhat modified from the theory of the quietest philosophy, which was practically a survival of Buddhism. There is little doubt but that admiration of this restraining philosophy, which Arnold adopted to a certain extent (as did Cowper, another man of letters who was demonstrably insane) had good results. Matthew Arnold's disease improved under the influence of this philosophy which tended to restrain all emotional display. His training also restrained all emotional peculiarities as "bad form." For a long time Matthew Arnold was in many respects a model man. About twenty-five years ago he contracted heart disease in consequence of a rheumatic attack which affected the aortic valve, and I believe there finally developed a mitral lesion, too, but of that I am not certain. The aortic valve was affected, and he had aortic stenosis. Through the advice of Sir Andrew Clark he led for a long time a comparatively quiet life. He devoted himself to subjects in literature that would tend rather to restrain the emotional element than to develop it. On the other hand, of late years he had been less restrained. In point of fact it was one of these emotional displays that alarmed Sir Andrew Clark and made him lay the injunction on Matthew Arnold to lead a restful life. At times his disposition was anything but sweet; some of his poems, one of which has been republished recently, in dealing with the medical and clerical professions, manifests a cynicism which would not discredit Swift.

This cynical mood was purely spasmodic, and it was often replaced by one in which his title of Apostle of Sweetness was well deserved. It is noticeable that the same period of buoyancy was succeeded afterwards by one in which horse-play was a distinguishing characteristic of the apostle. In the period preceding his death these alternations were singularly frequent and well marked. He had been exceedingly bland and buoyant. Soon after he decided to show his young friend his manly agility, attempted to jump over a gate and fell dead.

The bearing of these facts on prognosis is simple and direct. Mitchell Bruce has pointed out that the prognosis of cardiac disease in what he calls "nervous cases" (which include cases where emotional mobility is well marked), is unfavorable.

The cardiac disease but too often produces these emotional states, and they aggravate the cardiac disease. Given, therefore, a case of cardiac disease in which emotional displays occur frequently these last indicate moral treatment; and furthermore indicate a very unfavorable prognosis, more especially since, as already stated, too often suspiciousness occurs resulting in distrust of the physician and of remedial measures. These frequent perturbations cause a nutritive change in the heart, and as Bruce, A. Mickle, and Salemi-Pace have shown, are very important factors in the production of cardiac weakness.

The point on which I desire to lay stress is that this great buoyancy which occurs in the course of these troubles is as much a part of the disease as the murmurs, and furthermore, instead of feeling encouraged by the patient's buoyancy and good spirits an effort should be made to restrain them as much as possible. This emotional factor in most ordinary disease is a good deal ignored; and this is particularly true of cardiac disease, though by the older authors, Griesinger and Watson, attention is called to these facts. A good deal could be done by moral measures to restrain these emotional displays, and by remedial measures, and control of the heart's action by the proper use of certain cardiac tonics. A case of cardiac disease in which these emotional phenomena occur with great frequency, is very likely to have a bad prognosis, since the emotional condition is produced by the cardiac disease; and, on the other hand, these recurrences of emotional excitement are more and more likely to be followed by cardiac failure and degeneration. For this reason I desire to call atten-

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tion to this somewhat neglected phase of disease.

Dr. ROBERT H. BABCOCK: I regret exceedingly not having heard the first part of the paper, and so rise with some hesitation, but I would like to ask the author whether he attributes the mental symptoms to the cerebral hyperæmia produced by the heart disease; or whether, perchance, to faulty digestion and faulty elimination, since the liver and kidneys are interfered with in their functions from a passive hyperæmia set up by these heart cases. In my experience with these cases I have found the mental state of the patient to depend very largely upon the state of the liver—digestion, so to speak—and the mental state is relieved by measures which will relieve the engorgement. I find the alternation of mood, melancholy, hilarity, etc., relieved by regulation of the diet, and I have had this fact especially impressed upon my mind within the past two months by a case of advanced heart lesion, in which, owing to the great enlargement of the liver I decided to cut off all nitrogenous diet from the patient—that is, in the way of meat and eggs, and limit her to a vegetable and farinaceous diet with milk, and as a result the improvement has been exceedingly marked, and is noticeable in the mental state as well as in the physical. I would like to hear the opinion of the author on this subject. It seems to me that if we paid more attention to the proper nourishment of the patient, with reference to the ability of the digestive organs to carry out digestion to its fullest extent, instead of stopping short at the production of uric acid, we could do much more to regulate those alternations of mood.

Dr. N. P. PEARSON: I would ask if the urine had been examined in this patient? I think it is necessary wherever we wish to make a complete diagnosis. In heart disease there is likely to be passive hyperæmia of the liver and kidneys, and our pathology teaches that biliary acids and renal matter are liable to derange the brain, and produce all the symptoms spoken of. I always insist upon a careful examination of the urine in such cases in order to distinguish between hyperæmia of the brain and a disordered state of the liver and kidneys.

Dr. KIERNAN, in closing said: The conditions referred to by Drs. Babcock and Pearson, while deserving of attention, hardly come under the category of the mental phenomena to which I desired to call attention. They are more permanent and less fluxionary.

The use of urinalysis, while of value in the permanent type, is rather too gross a test to be applied in the rapid fluxionary types.

BAYARD HOLMES, M. D., read a paper entitled "Secondary Mixed Infection in Typhoid Fever," which appeared in the August number of this journal.

Dr. CLARK GAPIN: I rise to acknowledge my sense of obligation to Dr. Holmes. He has in the most skillful way written up a subject that is to me of great interest. I would like to ask that in his summing up he will state what, in his study of typhoid fever, is the best means of preventing the attacks of these little monsters of which he has so interestingly written, especially as they come from water. I believe that it is stated that the greatest source of danger is water; probably greater than all other sources combined; especially the water of large cities. I hope the author will suggest some means of treating water that will be certainly destructive of all germs.

Dr. HENRY GRADLE: It seems to me that the Society owes Dr. Holmes a little more recognition than to accept his paper in silence. As far as I am aware, this is the first attempt to trace clinically the history of a disease as a series of successive infections which has hitherto been considered as an etiological unit. The light which the address has thrown upon the subject seems to me to illuminate the clinical points more elaborately than microscopical research has as yet done. He has

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based his paper on analysis, and in many cases on inferences of such a positive nature that I believe, from a clinical point of view, a great deal of information can be admitted as correct, although not fully substantiated as yet by the necessary microscopical research. This question of mixed infection will probably take a greater place in our views of pathology than has hitherto been accredited to it. I believe it is not difficult to point out a large number of instances where there can be no doubt about the clinical unity consisting of several separate factors, although unlike typhoid fever, the actual proof is wanting. Take, for instance, small-pox, or simply cow-pox. Up to the present time I believe it is generally admitted that the etiological factor productive of these two diseases has not yet been determined; we are not yet in a condition to say which parasite causes small-pox and cow-pox, but we know both of these diseases have a certain clinical source, the latter part of which is entirely due to micrococci, the familiar staphylococci of suppuration. These have been isolated, and with them we can reproduce certain features common to small-pox and cow-pox, but we cannot reproduce the original diseases. They are the scavengers, so to speak, that follow the original parasite, but can be separated from them by culture. Whenever we vaccinate an individual we get not only the cow-pox pustule, but the ultimate pustule due to micrococci of suppuration. Similarly, diphtheria is due not to one parasite alone; the original parasite, the identity of which is not absolutely established, does not enter into the deeper tissues; it is limited in its ravages to the mucous membrane, which it invades, but the secondary stage is due to septicæmia from micrococci infection. It is the same in a great many other internal diseases, the parasites of which have not been recognized with certainty, while we are acquainted with the causes of septicæmia accompanying them, and representing a secondary infection.

Professor FRANK BILLINGS: I want to add my mite of thanks to Dr. Holmes for this most excellent paper. Some time ago, when I learned from Dr. Holmes that he was going to write on this subject, I called to mind several cases that illustrate his paper.

While an interne in Cook County Hospital, during August, September, and October, 1881, there were over one hundred patients daily in the hospital suffering from typhoid fever, and quite a number of these cases illustrated well the subject of Dr. Holmes' paper. Two or three cases were so emphasized to my mind that I remember them quite well. One, a young Swede about twenty-four years old, suffered from a severe form of typhoid fever three or four weeks. During convalescence he had left iliac phlebitis with secondary fever, and subsequently he had at least twenty subcutaneous abscesses all over his body—on the back, abdomen, thighs, and also an abscess of one middle ear. He had, in other words, a pyæmia, and it seemed to result from that thrombosis of the left iliac vein, for suppuration resulted there primarily. He was removed from that ward into the infectious portion of the hospital, so that I did not see him again. But he finally recovered under proper care.

I remember another case, a young American twenty-one years of age. He was sent to the hospital suffering from a very severe form of typhoid fever, and in his convalescence he suddenly developed subcutaneous hæmorrhages all over the abdomen and on the inside of the thighs. He must have had capillary emboli, and of course they must have come from some infection, whether you call it bacteria, or what not. Small abscesses resulted wherever these little spots appeared; the hæmorrhage became diffused in places, but the suppuration was never excessive.

In another case secondary unilateral empyæma occurred. I could give other cases, but these are sufficient to serve as examples of what Dr. Holmes has so ably

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shown us to be a secondary infection in typhoid fever.

Dr. HOLMES, in closing the discussion, said: I wish to thank the Society for the reception given this paper, and to say that I have attempted no discussion of the etiology or treatment of this well-known disease. I must admit that the remarks of Dr. Gradle contained the whole truth. The deductions in this article are rather more extensive than our knowledge of the subject will at present permit, but I have every confidence in the verification of most, if not all, of my statements, by subsequent investigation.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF CHICAGO.

The Regular Meeting was held on Friday, June 29, 1888, the President, HENRY T. BYFORD, M. D., in the chair.

Dr. DANIEL T. NELSON presented a "Sarcoma of the Ovary with half-twisted Pedicle, removed by autopsy."

He said: I have a specimen here, the interesting points of which will be brought out in the history. This was a post-mortem operation, but it demonstrates, I think, that sometimes surgical interference may be the better course when the patient's condition is nearly or quite hopeless. It is better for us at least to make an exploratory incision and arrive at a clearer diagnosis, which will possibly enable us to do something for the life of the patient, than to pursue an expectant course. It would seem as if this patient might have been saved had an operation been attempted early enough; probably she was not seen by any physician in regular attendance early enough to have insured her life by operation, still there will always be a doubt in regard to that.

I first saw the patient in consultation several days before she was taken to the hospital. She was a patient of Dr. J. E. De Wolf, of Englewood, whom I invited to be present to-night, but, unfortunately, he had a professional engagement. She was taken to the Woman's Hospital, but operation was delayed from one day to another, waiting for her to improve in condition, which she never did, and we have the tumor here by post-mortem removal. Her history is very scant, and yet some points in it are of interest, and will raise queries that I trust some of you will be able to answer.

Mrs. M. entered the Woman's Hospital June 7, 1888; occupation, housewife for many years; age at puberty, twelve; age on entering the hospital, thirty-nine. She was born in America of French and German parents, had been twice married; the first time seven months, the second time seventeen years. She was the mother of nine children, one by her first husband and eight by her second. After the birth of her last child, seven years ago, she did not menstruate for four years; since that time there have been irregular menstrual periods. It is so stated in the history, and yet I think we should rather say there were hæmorrhages from the uterus during these past four years. One year ago she noticed a fluid discharge from the rectum. This is a nice question in pathology, to my mind. She gave evidence of some inflammatory process in the right ovarian region—tenderness, soreness, some elevation of temperature, was confined to bed for a time, and there was a sudden discharge of a considerable quantity of blood. Such quantities are never rightly estimated, but the amount was guessed at by the patient at more than a pint, and supposed by her to have passed from the rectum. Perhaps that was not correct; at all events, after that bloody discharge, she was relieved of the swelling, the tenderness, the inflammatory process, whatever it was, and resumed her ordinary duties. Some time afterward, but unfortunately the record does not say how soon afterward, she began to suffer from swelling in the same region, that continued up to her death. There was constant soreness in the right inguinal region; three months ago the abdomen began to

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enlarge and she to gain in flesh, strength, and vigor, so that her attending physician, without making a local examination, and especially her neighbors, supposed she was pregnant. She felt comparatively well until four weeks previous to entering the hospital, when she began to suffer severe pain, tenderness in the right inguinal region, and there was evidence of some kind of tumor. On going to bed with her last illness, about a week before she entered the hospital, her physician became satisfied that there was something more than pregnancy, that there was inflammation of some type. Some days before she entered the hospital I saw her in consultation, and advised a removal to the hospital in the hope that there might be some kind of an operation for her relief. On entering, her temperature was 100 2-5° Fahr., pulse 104. The following day the temperature was 100 4-5° Fahr., pulse 132; the following afternoon the pulse was 132, temperature 100° Fahr. and a fraction. On the morning of the fourth day the temperature ran down to 99½° Fahr., and the pulse to 119. Possibly an operation might have been performed then, and her life saved, but a more convenient and better time was sought for, that never came. There were the usual evidences of peritonitis, and death in the usual way followed. When she first entered the hospital her bowels were moved, but not afterward; vomiting came on the third day, but passed off on the fourth, when probably an operation could have been performed with the possibility of saving life. She died on the sixth day after entering the hospital, and a few hours after death a post-mortem examination was made and this tumor removed. The appearance is somewhat changed now, but yet it presents fairly well the appearance at the time of the autopsy. You notice the dark, venous, congested appearance of a portion of the tumor. This was the anterior portion as it presented against the abdominal wall, very slightly adherent; no adhesions from old inflammation, either to omentum or other structures, but *a half-twisted pedicle.* The pedicle has been tied in such a way as to retain that appearance as much as possible. Here we have the broad ligament that is simply half twisted and tied in that position on purpose. The evidence of completely twisted pedicle and death of the tumor were not present. There was simply an increase in size resulting from the congestion, but no sloughing, no death of the part; a slow, inflammatory process had taken place in the tumor and subsequently in the peritoneum that was the cause of death. The obstruction of the bowels, I believe, was due to the peritonitis, and not to pressure from the tumor. It has not been my privilege to see a patient with a tumor and twisted pedicle, but it seems to me I could have recognized it; but this being only half-twisted, the circulation was impeded, not stopped. The tumor has been examined by Dr. Frank Carey, and the report is sarcoma. There was, so far as I saw, and I made a rather hurried examination, no evidence of the disease extending to other organs; there is no evidence of it in the pedicle; there was no evidence in the glands or intestines or other structures adjacent; so it seems as if it could have been entirely removed if the operation had been performed during the life of the patient. The uterus was a little enlarged, but no other evidence of disease about it. I made a diagnosis of malignant tumor, without being exactly certain as to its nature, but it seemed to me malignant on account of its rapid development and the age of the patient. I did not regard it as a uterine tumor, as the uterus was movable and the tumor seemed to be separate from it. Within the abdominal walls there was a considerable amount of ascitic fluid, so that the abdomen was very tense, and it was difficult to say whether or no the tumor could be moved readily within the abdominal walls. I was unable to say whether or no there were adhesions, but from the ascites I hoped not.

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Professor CHRISTIAN FENGER presented the following specimens:

FIBRO-CYSTO-SARCOMA OF THE UTERUS.

This specimen was removed by laparotomy from a woman of thirty-five, who had a tumor the size of a child's head, immovably connected with the uterus at the fundus, and also two small myomas that could be felt through the vagina. The large tumor showed fluctuating places on the surface, by palpation through the abdominal wall, and I concluded that it was an ovarian cystoma, either located in the broad ligament or sufficiently adherent to the uterus to make them move together. At the operation I found it to be a cysto-fibroma, or fibro-cysto-sarcoma, subperitoneal, but attached by the broad base to the uterus at the fundus. After temporary elastic constriction around the cervix, the tumors were enucleated, and as the uterine cavity was not opened, I united the wound of the wall of the uterus with buried step sutures, deep and superficial, and a final continuous suture along the inverted borders of the peritoneum.

At the close of the operation all hæmorrhage had apparently stopped, consequently I did not drain. In the course of the first week some fever set in, and on the tenth day I reopened the lower border of the wound, and evacuated about three to four ounces of blood, mixed with pus, from a cavity surrounding the body of the uterus. The evacuation and subsequent washing out and drainage did not have much influence on the patient's condition. The fever continued; she had a large gangrenous bedsore over the os sacrum, and died six days later, in the third week after the operation. The autopsy showed no peritonitis, and the cavity, with the accumulation of blood and pus, was found entirely separate from the general peritoneal cavity. On examining the uterus, I found, as you see here, surrounding the line of the uterine wound, an island of gangrenous tissue including the wound and a square inch or more to each side. This gangrene explains the persistence of fever and sepsis, notwithstanding the evacuation and drainage.

The large tumor has, you see, a smooth surface. On the cut surface, in some parts, there was an appearance of myoma; in other places, islands of softer tissue, looking like myxoma or sarcoma, and in other parts, cystic cavities. These cysts have not the usual shape and appearance of cystomas, but are irregular, triangular, or longitudinal sinuses, the walls of which are not smooth, but trabeculated, so as to give the appearance, as Dupuytren describes it, "similar to the walls of the ventricles of the heart."

I shall here make a few remarks on fibro-cystomata of the uterus, because they are comparatively rare, the whole number described in the literature not being much above one hundred. Fibro-cystomata are, as the name indicates, forms of fibromata, or myomata, and it is a comparatively rare change in the pre-existing elements of these tumors that gives them the additional characteristics of cystomata.

We distinguish between the following varieties: Myxo-myoma, as described by Virchow, characterized by œdema of the interstitial tissue, and by the fluid in the spaces containing mucin; consequently it is something more than a simple œdema of the myoma. Spread islands of embryonal cells are also proof of a more active process, terminating in myxomatous, or even sarcomatous, tissue. Besides the œdema in the interstitial tissue of the myoma, we find œdema and atrophy of the muscular fibres, isolated fibres, or their débris mixed with the fluid in the cavities. These cavities are of all sizes, from the microscopic, as shown on this slide, up to the size of a pin's head or walnut, and we even find cavities of enormous size containing several quarts of fluid. The cavities are lined with pavement-celled epithelium, or rather endothelium, as you would expect, since they originate from dilated lymph spaces, or naked when the cavity is formed by the disintegration of muscular fibres. The cavities

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contain clear, colorless, or bloody fluid that often coagulates spontaneously when evacuated—a fact that Atlee pointed out as a differential diagnostic sign in contradistinction to the fluid from ovarian cystomas. A special form is described as fibro-myoma lymphangiectodes, by Leopold. Distinctly different from this is the myoma teleangiectodes sive cavernosum of Virchow, with multiple cavities from the size of a millet-seed to that of a pea, communicating with the blood-vessels, and consequently containing pure blood. These tumors are found to enlarge during menstruation (Virchow), and on auscultation a bruit is heard (Péan).

As to the place of development, the great majority are subperitoneal. Of the seventy cases gathered from the literature by Heer, sixty-three were subserous, five interstitial and only two submucous tumors. They sometimes attain an enormous size, weighing twenty-nine, forty, and in one instance even eighty-one pounds.

The cysto-fibromata are most often found between the ages of 30 and 50. The symptoms are in the main, of course, the same as those of common myomata and fibromata. Uterine hæmorrhage is rare because, as before mentioned, they rarely develop close to the mucous membrane. A more characteristic symptom is a sudden enlargement, probably from acute increase in the size of the cysts or from intracystic hæmorrhage. The spontaneous coagulation of the fluid would be a valuable symptom if it was constantly found, but in about seventy cases it was noted in only eleven (Heer). It might, however, in reality, be more frequent, since in a number of cases it might not have been noticed (Gusserow). The lack of vitality shown by the tendency to local gangrene is also somewhat characteristic of these tumors. Thus Grammaticati, as stated by Gusserow, saw a myoma the size of a child's head, located in the wall of the cervix, undergo superficial necrosis, followed by sepsis and death.

It is rather noteworthy that a correct diagnosis was rarely made. They were almost always taken for ovarian cystomas, and a number of them were punctured. Puncture, however,in this form of cystoma is far more dangerous than in other cystomas, as shown by Leopold, who found that, as a consequence of puncture, ten patients out of eleven died. McGuire, therefore, is right in asserting that exploratory laparotomy is less dangerous than puncture.

The treatment should be early extirpation, because of the probability of rapid enlargement, the danger of puncture, the liability to gangrenous or septic changes, and thrombosis of the vessels in and around the tumor. Gusserow gives a series of forty-one laparotomies with twenty-two recoveries, the cause of the high mortality being the necessity of the removal of the uterus in some of the cases. Occasionally the operation cannot be finished; thus, according to Gusserow, in thirty-eight cases, seven were unfinished, and of the seven, six patients died. That an exact diagnosis, with a definite premeditated plan of operation, is of extreme importance, is shown by Gusserow, who out of eleven cases described in the literature, reported nine recoveries.

A few words about uterine sarcomata, inasmuch as the tumor here presented is a mixed form of cysto-fibroma and sarcoma. In the uterus we distinguish between circumscribed and diffuse sarcomas, the former originating in the muscular wall of the uterus, the latter in the mucous membrane. The circumscribed uterine sarcomas are of the most interest to us in this connection, as they stand in near relationship to fibromyomas and fibro-cystomas. They form, usually, round, circumscribed, harder or softer tumors, looking like, and developing in the same places as, the fibro-myomas, and so similar to these that we must class the relapsing fibromas of Paget among the sarcomas. But besides more or less typical fibrous or muscular cells, here we find islands of short, spindle-shaped, round or

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polymorphous cells, or islands of myxoma tissue; in general, a more vivid cell-formation than in fibromas and myomas; and we further find in the same tumor in different places different forms of cells. So predominating, however, are fibroma or myoma tissue cells that Schröder regards it as a law that the circumscribed sarcomas are always formed by transformation of fibromas. According to Gusserow, the transformation of fibromas into the mixed form of fibro-sarcomas, myxo-sarcomas, and cysto-sarcomas is so rare that the literature shows very few well-observed cases of this kind. By examining the microscopic slides that I exhibit to-night, we find, in some portions, apparently typical myo-fibroma tissue, without or with dilated lymph spaces, in which we find granulated matter containing loose or isolated muscular cells; in other places, islands of typical myxoma tissue, here and there islands of embryonal cells; in another part of the tumor, territories of short, spindle-shaped cells, large and with oval or round nuclei; in other words, islands of unmistakable sarcoma tissue; and finally, places of common typical, round-celled sarcoma tissue.

As to the age in which fibro-sarcomas of the uterus are found, there is this difference from the cysto-fibromas, that although they both are most common betwen the ages of 30 and 50, the sarcomas are still common between 50 and 60, while the cysto-fibromas, as we have seen, stop at the age of 50.

As regards treatment, the sarcoma is a malignant tumor, and needs more extensive removal or radical treatment than the benignant cysto-fibroma. The removal of subserous or interstitial fibro-sarcomas by abdominal supra-vaginal extirpation and extra-peritoneal treatment has often been followed by a growth of sarcomatous tissue in the cicatrix in the abdominal wall. The abdominal total extirpation of the uterus can hardly be said to have lost much of its dreadful mortality of about 70 per cent. from the time of Freund's first operation till now.

In the treatment of this case the following suggestion occurred to me—a suggestion which was not carried out because of the patient's death. I should operate as I did, enucleating the subserous tumor, and if the uterine cavity was not opened, try intra-peritoneal treatment of the stump. After recovery from this operation, if the microscopic examination of the tumor proved it to be a fibro-sarcoma, I should follow, as soon as the patient's strength would permit, by vaginal extirpation. In the rare cases in which the size of a diagnosed circumscribed uterine sarcoma or fibro-cystoma will permit of vaginal extirpation, this operation is, of course, the only one indicated.

The two other specimens are not strictly gynæcological, as they occurred in men. However, they had this in common with gynæcology, that laparotomy had to be made.

COLLOID CARCINOMA OF THE CÆCUM.

This specimen is a tumor of the cæcum, a so-called colloid carcinoma. The patient was a man of about forty, in whom, for about six months, an increasing tumor had developed in the middle of the abdominal cavity. When I saw him, the tumor was of the size of the head of a child of four, was somewhat movable from side to side, and up and down. There were never any disturbances from the side of the intestines, but emaciation and considerable pain. I thought it a tumor of the omentum on account of its mobility, also that it was malignant because it was hard, nodular, and of rapid growth, but I did not think of the intestine being the seat because there were no symptoms. When the abdominal cavity was opened, I found this large nodulated tumor with a great many adhesions to the omentum and some to the intestines, and finally having separated these and applied a great many ligatures, when I got the tumor isolated and out through the abdominal wound, I found the ileum pass-

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ing into one side of the tumor and the ascending colon coming out of the other side. I then divided the ileum and ascending colon two inches away from the tumor, detached and ligated the mesentery, and after the removal of the tumor closed the ileum and ascending colon in the usual way by invagination and suture, and made an anastomosis between the lower end of the ileum and upper end of the ascending colon by means of Senn's decalcified bone plates. The territory of approximation was covered by an undetached omental flap. I preferred this operation to circular resection or implantation of the ileum into the colon, because of the shortness of the plate operation as compared with the others. The patient lived four days, was able to take some liquid nourishment, had no vomiting, no tympanites, showed no symptoms of sepsis or peritonitis, but gradually became weaker and died. The autopsy showed no peritonitis; the ends of the upper and lower bowel were closed, as you see in this specimen, the closed ileum and closed end of the ascending column, and at a distance of two and a half inches the anastomosis covered with the omental flap which did not adhere. The peritoneal surfaces between the plates are perfectly united, allowing of no escape of liquid or air. The passage between the ileum and colon is perfectly free, as you see after opening the opposite wall of the intestines. The tumor shows at this point the ileum entering the large irregular cavity containing some liquid fæces, slightly tinged with blood, and at the upper end of the cavity is the ascending colon. This enormously thickened wall of the cavity, one and a half to two inches in thickness, is the carcinomatous intestinal wall, the cut surface presenting the characteristic gelatinous appearance of colloid carcinoma. This form of carcinoma has as its characteristics, in distinction from other carcinomas, colloid degeneration of the cells, causing them to enlarge, meet together, and form this transparent gelatinous substance. While we do not recognize a colloid carcinoma as distinctly different from carcinomas in general, as we know that partial colloid degeneration is common in all carcinomas of the intestinal tract, clinically, we recognize the extremes of this degeneration as a distinct form, characterized by its enormous size, and not uncommon in the stomach, large intestine, and peritoneum. In the peritoneal cavity there were no secondary tumors nor were the lymph glands of the mesentery invaded. This is what we should expect, as this colloid carcinoma is, as a rule, relatively benignant, with little tendency to the invasion of distant tissues or organs.

The death of the patient I ascribe to the fact that when the vitality has been lowered to a certain point by malignant tumors, without or with functional disturbances of vital organs, the organism loses its power to withstand more than a certain amount of operating, and death will follow from the yet unexplained exhaustion in spite of the absence of all the common well-known fatal complications.

DOUBLE CARCINOMA OF THE COLON.

The third and last specimen is from a man between forty and fifty, who had suffered terribly from difficult passages from the bowels for a number of months. Finally a small, almost immovable, tumor appeared to the right of the umbilcus, and later on distention of the small intestines, with pain and vomiting. Every half-hour or hour there would be a paroxysm of peristaltic contractions with excruciating pain. He finally asked to be relieved at any risk. On account of his extreme emaciation and weakened condition, I thought it out of the question to attempt extirpation, and resolved to try to relieve him by means of anastosmosis between the intestine above and below the stricture. Laparotomy revealed the tumor to be a carcinoma of the ascending colon; consequently I united the lower part of the distended ileum with the empty transverse colon five or six

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inches away from the tumor. The patient did not get much relief and died ten days after the operation, growing gradually weaker, as in the other case. The autopsy showed no peritonitis, the omental flap was partially adherent to the intestine, the peritoneum between the plates united, but at the distal end of the plate, in the colon, an island of necrosis of the intestinal wall from pressure-atrophy caused by the plate. Thus, in this case, perforation of the intestine was only a question of a short time. The carcinoma of the ascending colon, as the specimen shows, is three inches long and has caused almost comple occlusion of the bowel. The reason why no relief followed the operation was found below the anastosmosis in the splenic flexure of the colon where a second carcinoma had developed, causing, as you see, almost complete obstruction of the colon. This second carcinoma was not discovered during the operation, as it was hidden high up under the spleen. The emptiness of the transverse colon, together with the rarity of a second carcinoma, was the cause of my not suspecting its presence. If it had been discovered, the anastosmosis would have been made between the ileum and the sigmoid flexure, of course. The mortality from even palliative operations upon the intestines is large, because, as a rule, the patients do not come to us for operation until they are exhausted by serious intestinal disturbances, usually of long continuance. This is so generally the case, that collapse, even after a short operation, is of frequent occurrence.

Senn's operation of intestinal anastosmosis with the plates does not take any more time than the abdominal operation for artificial anus. The last operation here mentioned was of thirty-eight minutes duration, from the time of the incision in the abdomen to the dressing of the abdominal wound.

The PRESIDENT: I intended to exhibit, for Dr. William H. Byford, a uterine cystomyoma possessing all the characteristics of the one just presented by Dr. Fenger, but found to-day that the specimen had been allowed to spoil. It was pedunculated, slightly adherent in places, trabeculated within, and quite full of collections of serum that coagulated upon exposure to air. The patient was operated upon two weeks ago, and is passing through a rapid and easy convalescence. The pedicle was treated extra-peritoneally, and the abdominal cavity closed without drainage.

The PRESIDENT exhibited

A SUBSEROUS FIBRO-MYOMA OF THE CERVIX UTERI AND AN OVARIAN CYST.

I have here a subserous fibro-myoma of the cervix uteri and an ovarian cyst, which were removed three weeks ago from the same patient by vaginal section. I made first an exploratory incision in the recto-uterine cul-de-sac, and got behind the tumor, but could not get over it into the free peritoneal cavity. I then separated the uterus from the bladder, reached over the fundus, and ascertained the relation of the parts. I then pulled down the cervix and ligated the broad ligaments from below upwards. The capsule of the tumor was covered by a thin layer of peritoneum, except where it was imbedded in the cervical walls.

The interesting point was the size of the tumor, its relations, and the apparent impossibility of getting it out without taking the whole uterus. Although the operation was difficult, its severity did not seem great, for the patient is getting along very much the same as after a normal confinement.

DERMOID CYSTS OF THE OVARY.

I have here a dermoid tumor consisting of two cysts removed five weeks ago. The tumor was about the size of a child's head and filled with chocolate-colored fluid and hairs. Some of the fluid escaped and flowed into the peritoneal wound. The peritoneal cavity was flushed with water and drained. The recovery was the same as a favorable case of oöphorectomy. The other ovary had undergone cystic degeneration.

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SPECIMEN FROM TAIT'S OPERATION.

Here are four ovaries showing different stages of cystic degeneration. This pair was removed from a young girl who had been treated without benefit for the last three years. She was steadily losing ground. The diagnosis was ovaritis. They were removed about nine days ago.

Here is a pair removed four days ago. They commence to show the appearance of some of the larger tumors. The patient has been an invalid for seven years and was supposed to be losing her mind. Both are doing well.

DOMESTIC CORRESPONDENCE.

CHICAGO, September 6, 1888.

To the Editor of the Medical Journal and Examiner:

Allow me to correct a misprint in the September number, that is liable to do more mischief than I would like to take the responsibility for if carried out by the otologists. Page 140, 7th line from below, has *inject* the internal wall, instead of *inspect*, etc.

While at it, I beg leave to make a few remarks about a passage on the same page. The article says: "After a discussion of the history of the procedure and a description of the various ways in which it has been employed," etc. It is needless to say that the procedure, as being entirely new, has no history; but what the *Journal* means to mention is, of course, the various operations that have been tried, and the history of which, I, in my paper, let pass review, to make the difference between these and my procedure conspicuous.

If I am allowed a little more space in your valuable paper, I would like to say but a few words more about my procedure. I presume it is understood by the otologists that this is to be regarded as an improvement of the sounding, at the same time, as by cutting through the drumhead the first and most important step is made towards operating in the middle ear, if need be. The principal advantage of this is that all the hearing bones can he reached with the instruments, while application of sound externally don't carry its influence further than to the malleus or malleus-incus joint at most, if there is an anchylosis of this joint. Once inside of the drumhead I can apply the sound or hook on manubrium, the long process of incus or incus-stapedio joint, and can hook stapes also, although, as will be seen in my paper, I am no advocate of using violence, sufficient force can be applied on the manubrium and incus-stapedio joint to bring about this slightly increased mobility of the joints that we just want, and nothing more. I regard it a gross mistake to ever forget what a delicate structure we here have to deal with.

Very respectfully,

B. M. BEHRENS.

EXTRACTS AND ABSTRACTS.

INVESTIGATIONS RELATING TO ETIOLOGY AND PROPHYLAXIS OF YELLOW FEVER.

George M. Sternberg, M.D., Surgeon U. S. Army, stated before the College of Physicians of Philadelphia:

Having been selected by the President to make an investigation of the methods of inoculation practiced in Brazil and in Mexico, by which it is claimed that protection against yellow fever is afforded, he first proceeded to Brazil for the purpose of investigating the methods of Dr. Domingos Freire, of Rio de Janeiro, and after his return from that country went to Mexico to make a similar research with reference to the value of the method of inoculation practiced by Dr. Carmona y Valle. The conclusions reached up to the present date are: "Facts relating to the endemic and epidemic prevalence of yellow fever, considered in connection with the present state of knowledge concerning the etiology of other infectious diseases, justify the belief that yellow fever is due to a living micro-organism capable of development,

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under favorable local and meteorological conditions external to the human body, and of establishing new centres of infection when transported to distant localities.

"Inasmuch as a single attack of yellow fever, however mild, protects, as a rule, from future attacks, there is reason to hope that similar protection would result if a method could be discovered of inducing a mild attack of the disease by inoculation or otherwise.

"The hypothetical yellow fever germ, multiplying external to the human body in unsanitary places in tropical regions where the disease is endemic, or during the summer months in the area of its occasional epidemic prevalence, establishes infected localities, and susceptible persons contract yellow fever by exposure in these infected areas. We infer, *a priori*, that the yellow fever germ invades the system by the respiratory tract, by the alimentary canal, or from the general surface of the body, and it should be found in the blood and tissues, or in the alimentary canal, or upon the surface.

"Another possibility presents itself, viz., that the germ, multiplying in insanitary localities external to the body, produces a volatile poison which contaminates the air, and that an attack is induced by the toxic effects of this potent chemical poison. The more or less prolonged period of incubation—two to five days in numerous cases in which the attack has been developed after removal from the infected locality—seems opposed to this latter hypothesis.

"In the light of what is known of the etiology of other infectious diseases, the hypothesis that the germ really finds entrance to the body of the person attacked and multiplies within it, is that which presents itself as most probable, and it hardly seems worth while to consider any other unless this is proved by a complete investigation not to be true. In the latter event, we would have to consider the possibility of absorption through the respiratory tract of a volatile toxic agent, or through the skin of a poisonous ptomaine formed upon the surface of the body by a specific micro-organism which does not itself penetrate to the interior.

"Naturally the attention of investigators has first been given to a search for the 'germ' in the blood of those attacked, and in the blood and tissues of the victims of the malady.

"The researches made up to the present time have failed to demonstrate the constant presence of any micro-organism in the blood and tissues of those attacked.

"My own researches, recorded in the foregoing report, show that no such micro-organism as Dr. Domingos Freire, of Brazil, has described in his published works, or as he presented to me in his yellow fever germ at the time of my visit to Brazil, is found, as he asserts, in the blood and tissues of typical cases of yellow fever.

"There is no satisfactory evidence that the method of inoculation practiced by Dr. Domingos Freire has any prophylatic value.

"The claims of Dr. Carmona y Valle, of Mexico, to have discovered the specific cause of yellow fever, have likewise no scientific basis, and he has failed to demonstrate the protective value of his proposed method of prophylaxis."—*Brooklyn Medical Journal.*

ANNOUNCEMENTS.

A Sanitary Convention will be held at Hastings, Mich., under the auspices of the State Board of Health, on Monday and Tuesday, December 3 and 4, 1888.

Intercolonial Medical Congress of Australia.—Preparations are already well advanced for the second congress, which will begin January 7, 1889, in Melbourne. Thomas N. Fitzgerald, F. R. C. S. I,. is the president-elect. The other officers have been nominated for the congress and for the sections, which number nine, with two subsections.

The announcement is made that members coming from Europa, America, or India will receive free passes over all Victorian railways, and all members of the congress will be entitled to return tickets at single fares, available for two months, over all the railways in Australia. Various shipping companies have consented to carry members of the congress at special rates for the sea passage.

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E. Williams

PROFESSOR ELKANAH WILLIAMS, M. D.

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The Medical Journal and Examiner.

VOLUME LVII. NOVEMBER, 1888. NUMBER 5.

TWELVE MONTHS OF ABDOMINAL AND VAGINAL SECTION.*

BY HENRY T. BYFORD, M. D.

GENTLEMEN: I have chosen to lay before you on this occasion an abstract of my work in abdominal and vaginal section during the year in which I have served you as president. As a detailed report of forty-eight cases would take up too much of your time, I have furnished each of you with a statistical table of them for your inspection, and my remarks will be chiefly of a critical and explanatory nature.

First, as to the percentage of deaths: A death-rate of 17 per centum can not be considered an unusually large one for operations in which the abdominal cavity is opened for all sorts of pelvic growths as they are met with in gynæcologic practice, including malignant and almost hopeless cases. Yet this mortality is above twice what it ought to have been in this series, or ought to be in almost any such series.

The two deaths from hæmorrhage should not have occurred. I suppose that almost every laparatomist of any experience has lost one or two patients from hæmorrhage, and has needed one or both of these accidents to teach him how to tie the pedicle. And until this shall be adequately taught somewhere, I suppose that almost every coming laparotomist will lose a patient or two in this manner.

The teaching that the pedicle should always be transfixed has diminished the frequency of hæmorrhage, but has not prevented its occurrence. The kind of knot cannot be made to solve the question, for hæmorrhage has occurred with all kinds of knots. In both of my cases of death from hæmorrhage I followed the directions usually given in the books and employed in practice, and I attribute the death of one, if not both, to my faithfulness in following out such advice. ' I transfixed the pedicle in a non-vascular place, and, although I tied as tightly as I could, my patient was almost pulseless from internal hæmorrhage four hours afterward.

I will substantiate the position taken by a few quotations. First, from Heger and Kaltenbach (Operative Gynakologie, third ed., 1880, p. 273): "The pedicle, held between two fingers, should be transfixed at a *non-vascular** place, ... a double thread drawn through and each *half* of the pedicle tied by itself, without crossing the threads. . . . The threads, at the tying of the first knots are always put through twice (surgical knot), and drawn with a gradually increasing force until they have made a deep and permanent furrow; thereupon, a second, and even a third, knot is tied. Below the partial ligatures we always put a ligature about the whole pedicle."

* Presidential address delivered at the annual meeting of the Gynæcological Society of Chicago, October 19, 1888.

* Italics in these quotations are mine.

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Next from Olshausen (Handbuch der Frauenkrankheiten, Billroth & Lueke, 1886, vol. ii., p. 544): "It is generally accepted that thick pedicles must be tied in two, three, or, exceptionally, four portions. With the ordinary and quite efficient division in two *halves*, one separates the tissues in the *middle*, thinnest portion at a *non-vascular* place. . . . In the *half* on one side lies the tube; in the other, the ovarian ligament." The following is Greig Smith's description (Abdominal Surgery, 1887, p. 167): "The ligature is placed double by transfixing with a blunt needle. The inner pedicle contains the utero-ovarian ligament, the Fallopian tube somewhere near its isthmus, the spermatic artery and its veins, and the small branch which accompanies the Fallopian tube. The outer ligature lies at the retiring angle where the infundibulo-pelvic and infradibulo-ovarian ligaments meet, takes its *half* of the mesovarium, and also constricts the spermatic artery."

It will be noticed in these quotations that the pedicle is usually to be tied in *halves* and transfixed in a *non-vascular* point, which is generally a weak one. In both of my fatal cases I transfixed through a non-vascular portion, and in the one case (ovariotomy), I drew upon the silk as tightly as I could, while in the other (oöphorectomy), I used Tait's knot, and thought I got it as tight as possible. I opened the abdomen before death in both cases and found that the pedicle of the ovarian tumor had partly slipped out of the ligature, and that the other had not been sufficiently secured.

I now use the following method, with a view to avoiding such accidents, and have not found it wanting in safety: I hold the pedicle between the thumb and forefinger of the left hand so that the Fallopian tube, well drawn out, lies on the same side with (and against) the ovarian ligament. The mesovarium lies against the mesosalpinx. I pass the double-threaded needle with one thrust through the inner or mesenteric edges of both the Fallopian tube and ovarian ligament, thus getting the ligatures fixed at two firm points. I then hand the pedicle to an assistant and tie the tube and ovarian ligament with one of the threads, and the remainder of the pedicle, which is much more than *half*, with the other; and then the whole pedicle *en masse* with one of the same threads, preferably the one first tied. While drawing the ligatures tight with the first or surgical knot of each ligature, I keep on pulling at the knot while the traction upon the pedicle is relaxed by the assistant. This is necessary to secure complete collapse and permanent constriction of the tissues. When the pedicle is unusually short and inelastic I transfix, as just stated, but, in addition, carry both threads before tying through a fold of the pedicle at the side opposite the Fallopian tube and ovarian ligament, and thus have a hold at three peripheral points of the pedicle, and am insured against slipping of the ligature. To get a firm hold for the ligature, which is inconsistent with tying the pedicle in *halves*, and to relax the pedicle while tying, so that it may be made to collapse completely, are, it seems to me, points that can not be neglected with safety in any case, and which ought to be more fully explained in the books. Fleshy pedicles must, of course, be ligated in small portions, and are not referred to in what I said above.

The death from heart-failure (exploratory excision) ought not to have occurred, for either I ought not to have operated, or, having done so, should have pushed stimulants, nourishment, massage, etc., more vigorously. At present, whenever, after the first two or three days' fasting, the pulse becomes soft and compressible, I give some stimulants, particularly between the hours of 2 and 8 a. m., at which time the temperature is lowest and the circulation feeblest. Rectal alimentation is, of course, employed, but is always used with care for fear of inducing rectal irritation.

The two deaths from abdominal hysterectomy occurred in patients who should not

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have been operated upon, because the condition proved to be such that recovery after an operation was impossible. Yet, as they were both doomed to a speedy, painful death if left without interference, and were anxious for an operation, I could not see my way clear to refusing them what seemed a last chance. It is also certain that the other fatal ovariotomy ought not to have been performed, since cancerous deposits existed elsewhere than in the ovary. Let us hope that in the future, either cases like these three will be operated upon sooner, or an increased experience will enable us to diagnose more completely and determine with greater accuracy just when it becomes our duty to abandon the patient to her disease.

Had I known how to tie a pedicle, and had I known better how to select my cases, six of these seven deaths would not have occurred, and the mortality for the series would have been less than 3 per centum. But it is, of course, unjustifiable and cowardly for a surgeon to reject all unpromising cases, when he knows that they must speedily die if not relieved by an operation.

It will be seen that all of the deaths took place among the twenty-seven abdominal sections, and none among the twenty-one vaginal sections.

In preparing the patients for the operations I usually give five or six grains of blue-mass on the second night before, and follow it in the morning by a saline aperient. The mercurial leaves the secretions in a more healthy state than other laxatives, and better promotes absorbtion of the gases. Unless that works too thoroughly, an enema is given the evening before the operation, of two ounces of glycerine with four of water, and a plain water-enema on the morning of the operation. From one to two ounces of brandy or whisky are given half an hour before the anæsthetic is administered. I prefer cloroform, but use ether because of the difficulty in getting an assistant who is accustomed to use the former.

In the after-treatment no morphine is given, except for diarrhœa, or occasionally one dose immediately after the operation, for excessive nausea or restlessness. Pain, due to intestinal peristalsis, is treated by aromatics, the rectal tube, and the glycerine-and-water enema.

Vomiting after the operation, even though it continue for two or three days, is not considered as of serious consequence. But secondary vomiting, commencing gently after the first has subsided, with regurgitation at pretty regular intervals and gradually increasing in severity, is regarded as the forerunner of intestestinal obstruction or paralysis, or possibly of peritonitis. I then make haste to administer a saline aperient before the nausea becomes so severe as to prevent its retention. One drachm of the granular effervescing citrate of magnesia is given every hour until flatus or feces pass the anus, or until its action can be felt in the bowels by the patient. After this has occurred, or if it does not occur after ten or twelve drachms have been retained, the usual glycerine enema is given, and repeated, if neccessary, with the addition of a drachm of spirits of turpentine. In case the saline aperient produces much pain it is discontinued and the enemas relied upon exclusively. When intestinal gases commence to pass off without the aid of the rectal tube, I consider the danger of intestinal obstruction or paralysis over for the time, and wait for other symptoms, or until near the end of the first week, before further disturbing the bowels. The effect of the magnesia should be to increase the comfort of the patient and diminish her pain; if it does not do so, it is not, as a rule, indicated.

In operating, I usually try to obtain as thorough asepsis as practicable, but, as a rule, do not consider its perfect attainment possible. I endeavor to operate so that my patient will recover, even if some of the ordinary septic germs of the atmosphere be introduced into the abdominal cavity, and seldom feel certain of completely excluding

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them, except in simplest cases with small incisions. The part of the peritoneum with which I consider it most dangerous to deal is that which covers the intestines. I touch them only when absolutely necessary, and keep them as nearly constantly out of view or exposure to the air, by a covering of omentum, sponge, or aseptic cloth, as possible. I think the chances for recovery in any given properly performed abdominal or vaginal section will be bad almost in proportion as the intestinal coverings are injured or exposed to the air.

Finally, gentlemen, I will close with remarking that the way of the laparotomist, like that of the transgressor, is hard. The lot of the ideal antiseptist is unusually so, especially if he have that fear of sepsis that goes with the so-called aseptic conscience. At a recent abdominal section I had to make a large incision and spend some time in an attempt to control hæmorrhage in the pelvis. About the time I had got the abdominal cavity open an invited guest came in, stating that, through a mistake of the messenger, he had just received my invitation and had started for the hospital immediately. He was, of course, unprepared. When I called for ligatures he, considering himself an assistant, made a grab for them. I had him put them down, and gave him a short lecture. Yet in a few minutes he had his hand upon the edge of the incision, holding an instrument. After the operation I found among my instruments a pair of hæmostatic forceps, which he had taken out of his pocket-case after I had used my last one. Upon leaving he informed me that the case had been an instructive one to him, and, although the patient got well without a bad symptom, it was also an instructive one to me.

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Abdominal Sections for the Removal of Ovarian Tumors.

No.	Name, and Date.	Age.	Married or Single.	No. of Children.	No. of Tappings.	Size and Nature of Tumor.	One or both Ovaries.	Adhesions.	Treatment of Pedicle.	Drainage.	Complications.	Hospital or Private.	Result.	Reported Elsewhere.	Remarks.
1	Mrs. P—th. July 14, 1887.	40	M	Multi-para.	1 for ascites	Carcinoma of right ovary size of man's head, cyst of left ovary size of fist.	Both	Extensive, to right abdominal wall	Tied with silk and dropped	Yes, long rubber tube	Ascites.....	St. Luke's Hospital	D. in 10 hrs	No	Died of shock and exhaustion.
2	Mrs. Tho—s. Aug. 30, 1887.	27	M	4	0	Dermoid cyst, size of large goose egg.	Both	No	Tied with silk and dropped	No	Fibro-myoma of fundus uteri, size of small orange.	Woman's Hospital	R	No	Uneventful recovery.
3	Mrs. W—sh. Nov. 19, 1887.	48	M	Multi-para.	0	Monocyst, size of man's head, filled with chocolate-colored fluid.	One	Extensive omental	Tied with silk and dropped	No	Adherent, omentum indurated, size and shape of hand	St. Luke's Hospital	R	No	Removed thickened omentum after a multiple juniper catgut ligature.
4	Mrs. —. Jan. 11, 1888.	40	M	0	0	Monocyst, containing 3 pints.	One, right	No	Tied with silk and dropped	No	Urethritis, cystitis, insanity.	St. Luke's Hospital	R	No	Got up at beginning of 5th day, changed nightgown, put on skirt, and was found at the door twenty feet away. Next day temperature 98 2-5 to 99° Fahr. Got up again on 10th day. Recovery rapid and uninterrupted.
5	Mrs. P—s. Jan. 31, 1888.	23	M	Twins.	0	Polycyst, larger than a man's head	One, left	Slight	Tied with silk and dropped	No	Hæmorrhage from pedicle.	St. Luke's Hospital	D. in 27 hrs	No	Died of hæmorrhage. Opened abdomen about six hours after and found that the ligature had slipped. Abdominal cavity full of blood. Sewed up broad ligament. Transfusion of saline sol. and afterward of blood.
6	Mrs. S—l. May 29, 1888.	28	M	2	0	Dermoid cyst, size of woman's head.	Both	No	Tied with silk and dropped	Yes, for 3 days, glass tube	Metritis.....	Woman's Hospital	R	No	Escape of fluid from tumor into incision. Washed out abdomen with warm water. Smooth recovery.

Vaginal Sections for the Removal of Ovarian Tumors.

No.	Name, and Date.	Age.	Married or Single.	No. of Children.	Size and Nature of Tumor.	One or Both Ovaries.	Adhesions.	Treatment of Pedicle.	Drainage.	Complications.	Hospital or Private.	Result.	Reported Elsewhere.	Remarks.
1	Mrs. M—m. Aug. 29, 1887.	40	M	8	Monocyst size of small egg — long pedicle.	Both	None	Tied and dropped.	Yes, 24 hours	Menorrhagia, retroversion, invalidism.	St. Luke's Hospital	R	Am. Journal Obst. April, 1888	Tamponed uterus in position for 2 days. Cured retroversion and symptoms.
2	Miss R—e. Oct. 2, 1887.	24	S	0	Dermoid cyst size of walnut, right.	Both	Uterus and appendages matted together.	Tied and dropped.	Yes, 40 hours	Left pyo-salpinx. Patient bedridden	Woman's Hospital	R	Am. Journal of Obst., April, 1888, 9, v.	Abscess developed in the 4th week and discharged into vagina and rectum. Is now improving in health, is menstruating.

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ABDOMINAL SECTION FOR REMOVAL OF UTERINE APPENDAGES NOT THE SEAT OF TUMOR

No.	Name, and Date of Operation.	Age	Married or Single.	No. of Children.	Pathological Condition or Symptoms necessitating Operation.	Duration of Disease.	What Removed.	Adhesions.	Treatment of Pedicle.	Drainage.	Hospital or Private.	Recovery or Death.	Complications before or after Operation.	Elsewhere Reported.	Remarks—Effect of Operation upon condition requiring it.
1	Miss McL. July 21, 1887.	24	S	.....	Hystero-epilepsy. Follicular enlargement of both ovaries (slight).	.....	Both ovaries, with tubes	No	Tied and dropped	No	Woman's Hospital	R	None	No	Troubled since operation with dark, offensive discharge from the uterus. Symptoms were relieved for a time, but since as bad as ever at times, and better at times.
2	Mrs. A. R. R—ll Aug. 10, 1887.	23	M	1 child, 1 misc. at 6 mo.	Small fibroid of fundus uteri. Epilepsy, numerous severe fits daily, near menstrual period.	Several years	Both ovaries, with tubes	No	Tied and dropped	No	Woman's Hospital	R	Pelvic hematocele size of large orange, 3 weeks after operation produced by eating bananas; absorbed in 3½ months.	No	Epilepsy cured for a few weeks, then returned; but not as bad as before operation, and is now improving.
3	Mrs. McK—a. Aug. 11, 1887.	26	W	Three	Periodic hysterical mania, worse at menstrual periods. Enlarged ovaries.	Seven years	Both ovaries, with tubes	No	Tied and dropped	No	Woman's Hospital	R	Retroplacement and anteflexion of uterus.	No	Complete cure to date. Had two slight attacks soon after operation—none since. In good health.
4	Mrs. Kr—r. Aug. 29, 1887.	19	S	.....	Chronic interstitial ovaritis and enlargement. Pain. (See remarks).	Six years, since first menstrual period	Both ovaries, with tubes	No	Tied and dropped	No	St. Luke's Hospital	R	Premature menopause. Patient plethoric	Chicago Medical Society, 1887	Complete cure. Ovaries nearly four times natural size and each converted into a multitude of cysts size of peas, none of which projected from the surface.
5	Mrs. S—nd. Sept. 8, 1887.	19	W	One, a year before	L. hæmato-salpinx. Both ovaries about 4 times normal size and inflamed.	One year	Both ovaries, with tubes	Extensive, on both sides.	Tied and dropped	No	St. Luke's Hospital	R	Slight attack of phlebitis (r) following operation. Defecation painful for 2 months after. Cervical stenosis from anteflexion, with uterine colic.	No	Condition originated in puerperal septicæmia. Now in fair health and improving, but has a small, tender lump on right broad ligament.
6	Miss Fr—ll. Sept. 26, 1887.	19	S	.....	Ovaritis of long standing. Unimproved by p'longed treatment.	Uncertain	Right ovary and tube	No	Tait's knot	No	St. Luke's Hospital	D. in 36 hours	Hæmorrhage from pedicle.	No	Abdominal cavity opened 19 hours after operation, after transfusion of nearly Oil of saline fluid, and found ligature partly off of stump, abdominal cavity full of blood-clots.
7	Mrs. L—n. Oct. 6, 1887.	51	M	Multip.	Cyst of right broad ligament. Invalidism unimproved by treatment. Small cyst projecting f'm surface of left ovary	Several years	Left ovary and tube	Cyst on left ovary firmly adherent, causing free bleeding.	Tied and dropped	Glass tube for 24 h'rs, Iodoform gauze 48 hours longer	St. Luke's Hospital	R	None	No	Patient slightly improved. Drew the fluid from cyst of broad ligament by aspiration per vaginam Nov. 7, 1887, at the place of its projection over the cul de sac. Abdominal walls were so very fat that a large abdominal incision would have been necessary even to aspirate the cyst from above. Intestines full and tense.

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Abdominal Section for Removal of Uterine Appendages not the Seat of Tumor—Concluded.

No.	Name, and Date of Operation.	Age.	Married or Single.	No. of Children.	Pathological Condition or Symptoms necessitating Operation.	Duration of Disease.	What removed.	Adhesions.	Treatment of Pedicle.	Drainage.	Hospital or Private.	Recovery or Death.	Complications before or after Operation.	Elsewhere reported.	Remarks—Effect of Operation upon condition requiring it.
8	Mrs. S—dy. Oct. 14, 1887.	37	Wid.	0	Left hydrosalpinx. Enlarged cystic ovaries, chronic invalidism, unimproved by treatment.	14 years	Both ovaries with tubes.	No	Tied and dropped.	No	Woman's Hospital.	R	Small hernia followed but gives no trouble. Endometritis before operation.	Chicago Gyn. Soc., Nov. 18, 1887.	Slow improvement after operation.
9	Mrs. K—n. Dec. 19, 1887.	22	M	0	Enlarged cystic ovaries. Interstitial salpingitis. Distension of veins of right broad ligament. Excruciating dysmenorrhœa.	2½ years	Both ovaries with tubes.	Universal and firm.	Tied and dropped.	Yes, glass tube.	Woman's Hospital.	D. in 3½ days.	Persistent bloody oozing from drainage tube. Obstruction of bowels.	No	Death caused by obstruction of bowels with pelvic peritonitis. Highest temp. during first 3 days, 101 2-5° F.; before death, 102 2-5°.
10	Ellen A—n. Jan. 4, 1888.	24	S	... .	Congenital anteflexion. Incurable dysmenorrhœa. Slightest dilatation followed by inflammatory reaction.	Since first menstrual period	Both ovaries with tubes.	No	Tied and dropped.	Yes, glass tube.	St. Luke's Hospital.	R	Losing mental power; acquiring opium habit. Becoming fast a physical wreck.	No	Recovery is complete. Now supports her aged mother.
11	Kate B—e. Jan. 16, 1888.	24	S	.....	Epilepsy at or near menstrual periods. Loss of mental power, slight cystic enlargement of L. ovary.	2½ years	Both ovaries with tubes.	No	Tied and dropped.	No	St. Luke's Hospital.	R	Epilepsy so far cured. Has an exudate size of end of thumb about right stump, preventing her from working.	No	Has menstruated regularly for past 3 months. Still complains of mental weakness, kept up perhaps by irritation about right stump.
12	Mrs. J—n. Jan. 22, 1888	23	M	1 Premature.	Double ovaritis and salpingitis, with recurrent acute attack. Right hematosalpinx.	Since birth of child	Both ovaries with tubes.	Extensive and firm.	Tied and dropped.	No	Woman's Hospital.	R	Followed in three months by rheumatic arthritis. Endometritis chronic before and after operation.	No	Gradual progressive recovery from all but endometritis.
13	Miss McF—n. March 26, 1888	35	S	.....	Soft fibro-myoma of fundus uteri size of goose egg with persistent incurable pelvic pains. Slight menorrhagia.	Symptoms for several years	Both ovaries with tubes.	No	Tied and dropped.	No	St. Luke's Hospital.	R	....	No	Left hospital complaining slightly of pelvic pains. Menses, which were rather profuse, had not returned.
14	Ida H—h. May 21, 1888.	23	S	.....	Congenital anteflexion, with dysmenorrhœa and pelvic pains, increasing in spite of many months of treatment.	5 years. Soon after menses appeared	Both ovaries with tubes.	No	Tied and dropped.	No	Woman's Hospital.	R	....	Chicago Medical Society, May 21, 1888.	Tenderness about one stump for about 3 months. Improving. Menses have not returned.
15	Miss P—w. June 26, 1888.	25	S	.....	Dysmenorrhœa. Incurable pelvic pains Failure of mental power. Enlarged ovaries.	7 years	Both ovaries with tubes.	No	Tied and dropped.	No	Woman's Hospital.	R	Cervical endometritis. Bluish softened ulcerated os.	No	Ovaries cystic and four times their natural size. Left hospital improved.

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VAGINAL SECTION FOR REMOVAL OF UTERINE APPENDAGES NOT THE SEAT OF TUMOR.

No.	Name, and Date of Operation.	Age.	Married or Single.	No. of Children.	Pathological Condition or Symptoms necessitating Operation.	Duration of Disease.	What Removed.	Adhesions.	Treatment of Pedicle.	Drainage.	Hospital or Private.	Recovery or Death.	Complications before or after Operation.	Effect of Operation upon Condition requiring it.	Remarks.	Elsewhere Reported.
1	Mrs. E. D—ty. July 30, 1887.	35	M	Three	Hysterical mania and cephalalgia. Husband left her on account of supposed insanity.	Several years	Both ovaries and tubes	No	Tied and dropped	Yes, 24 hours	Woman's Hospital	R	Addicted to opium habit before operation. Retroversion.	Cured of mania, cephalalgia and opium habit.	Last attack of cephalalgia and mania was the day before the operation.	Am. Journal Obst. April, '88.
2	Mrs. N—n. July 31, 1887.	31	M	One, at 8 months	Oöphoritis. salpingitis. Right hydrosalpinx. Husband thought she was losing her mind Several years' treatment without relief. Acute attacks. Unable to work.	Many years dating from confinement	R. ovary and tube. Loosened adhesions of left ovary.	Universal and firm	Tied and dropped	Yes. 24 hours	St. Luke's Hospital	R	Retroversion and endometritis before operation. Slight phlebitis on right side after operation.	Gradual progressive relief. Great gain in flesh Able to do her housework. Mental symptoms cured.	Left ovary and tube should have been removed.	Am. Journal Obst. April, '88.
3	Mrs. S—r. Aug. 11, 1887.	42	M	Three	R. ovary enlarged and neuralgic, lying in recto-uterine pouch Bedridden. Mental condition bordering on insanity. Failure of treatment.	Two years	Both ovaries and tubes	No	Tied and dropped	Yes, 24 hours	Woman's Hospital	R	Had been in asylum for an attack of insanity. Retroflexion.	Gradual uninterrupted recovery, almost complete when last heard from.	.....	Am. Journal Obst. April, '88.
4	Mrs. Annie C. Aug. 17, 1887.	24	M	Two	Hæmatoma of R. ovary size of hickory nut. Bilateral ovaritis and salpingitis. Bedridden 3 years.	Three years	Both ovaries and tubes	Universal and firm. (See remarks.)	Tied and dropped	Yes, two days	St. Luke's Hospital	R	.....	Gradual recovery. Examined in July, 1888, and found cure complete.	A porton of right tube left.	Am. Journal Obst. April, '88.
5	Mrs. C—n. Sept. 8, 1887.	48	M	One, 20 years old	R. ovary in recto-uterine pouch. L. ovary enlarged and cystic. L. tube hypertrophied.	20 years	Both ovaries and tubes	No	Tied and dropped	Yes, 24 hours	St. Luke's Hospital	R	Light anteflexion.	Able to work out two months after operation.	.....	Am. Journal Obst. April, '88.
6	Mrs. J—n. Sept. 26, 1887.	34	M	One	R. ovary in recto-uterine pouch. Both enlarged and cystic.	Since birth of child	Both ovaries and tubes	No	Tied and dropped	Yes, 48 hours	St. Luke's Hospital	R	Retroversion.	Rapid complete relief.	Retroversion cured by tamponing after operation.	Am. Journal Obst. April, '88.
7	Mrs. C. E. F. Oct. 18, 1887.	28	M	wo	R. ovary enlarged and in recto-uterine pouch. Inability to be on feet any length of time.	Four years	Right ovary and tube	No	Tied and dropped	Yes, 24 hours.	Woman's Hospital	R	Retroversion.	Rapid cure.	Retroversion cured.	Am. Journal Obst. April, '88.
8	Mrs. J—n. Jan. 14, 1888.	42	M	One, 16 years old	Chronic inflammation of appendages. Frequent acute attacks. R. ovary enlarged and cystic.	16 years	Both ovaries and tubes	No	Tied and dropped	Yes, 30 hours.	Woman's Hospital	R	Retroversion before, pneumonia during, convalescence.	Relieved until the retroversion recurred two months after operation while going up stairs. Symptoms then recurred and have improved slowly since.	Uterus tamponed in position for 2½ days and remained in fair position for two months.	Am. Journal Obst. April, '88.
9	Mrs. H—d. Feb. 6, 1888.	22	M	One, 2½ yrs. old	R. ovary size of small hen's egg, prolapsed. Pain and disability. Failure of treatment.	2½ years	Right ovary and tube	No	Tied and dropped	Yes, 24 hours.	St. Luke's Hospital	R	.....	Immediate, complete and permanent relief.	.....	Am. Journal Obst. April, '88.

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Vaginal Section for Removal of Uterine Appendages not the Seat of Tumor—Concluded.

No.	Name, and Date of Operation.	Age.	Married or Single.	No. of Children.	Pathological Condition or Symptoms necessitating Operation	Duration of Disease.	What Removed.	Adhesions.	Treatment of Pedicle.	Drainage.	Hospital or Private.	Recovery or Death.	Complications before or after Operation.	Effect of Operation upon Condition requiring it.	Elsewhere Reported.
10	Mrs. J. E. D. Feb. 16, 1888.	26	M	0	Left tube contained 4 ounces of serum; Left ovary half an ounce; Right ovary and tube enlarged and prolapsed	Several years.	Both ovaries and tubes	On left side.	Tied and dropped	Yes, 30 hrs.	Private	R	Retroversion before. Abscess in recto-uterine pouch, due to a small effusion of blood after operation.	Patient passed from observation.	Am. Journal Obst., Apr., 1888.
11	Mrs. J. H. E. Apr. 21, 1888.	28	M	0	L. hæmatosalpinx. Left ovary 4 times natural size. R. appendages diseased. Prolonged invalidism.	12 years, since a fall.	Both ovaries and tubes	Extensive and firm on both sides.	Tied and dropped	Yes, 48 hrs.	Woman's Hospital	R	Fracture of coccyx. Retroversion. Small abscess in cellular tissue about stitches discharged ten days after the operation and gave no more trouble	Gradual improvement. Feels better than before operation.	No
12	Mrs. Mc E. Apr. 26, 1888.	33	M	1	Both ovaries enlarged, L. in recto-uterine pouch. Both tubes indurated and occluded. Persistent incurable pelvic pains.	Since miscarriage 5 yrs. ago.	Both ovaries and tubes	Slight of left tube.	Tied and dropped	Yes, 32 hrs.	Woman's Hospital	R	Retroversion. Exudate, size of chestnut, was found at site of L. stump 3 weeks after operation, which was rapidly absorbed.	Complete relief for three weeks, when the temp. went up to 100° F., and severe pains came on Patient felt too well and exercised too much. Improving rapidly when she left hospital.	No

Abdominal Hysterectomy.

No.	Name, and Date of Operation.	Age.	Married or Single	No. of Children.	Pathological Condition and Symptoms necessitating Operation.	Duration of Disease.	Nature of Operation.	Adhesions.	Drainage.	Hospital or Private.	Recovery or Death.	Complications before and after.	Remarks and subsequent History.	Elsewhere Reported.
1	Mrs. W—n. Aug 4, 1787.	40	M	4 and 4 misc.	Fibro-sarcoma of uterus size of man's head. Pain and rapid growth.	6 years.	Amputation and fixation of stump in wound with use of elastic ligature.	Intestinal all over it; also attached to pelvic wall.	Yes.	Woman's Hospital.	Died from exhaustion in 36 hours	Unsuccessful attempt at removal had been made 2 months before.	Stump was size of a man's thigh. Had been diagnosed to be a fibro-myoma.	Chicago Gyn. Soc., Nov., 1888.
2	Mrs. E—tt Jan 2, 1888.	34	M	1	Fibro-cystic myoma size of uterus at 9 mo. Half pint of watery fluid in right tube. Left tube contained a quart and had grown down between folds of broad ligament to pelvic floor.	7 years.	Amputation, treatment of pedicle after Schröder's (intraperitoneal). Left tube could not be removed, and was stitched into external wound.	L. tube adherent to tissues at base of broad lig.	Double. One tube in abdominal cavity, another in L. Fallopian tube.	Woman's Hospital.	Died of exhaustion in 48 hours with commencing rise of temp	Broad lig. drawn up over tumor so as to render ligation almost impossible.	....	No
3	Mary N—l. May 2, 1888.	32	S	.....	Multitudinous subserous fibro-myomata of uterus with a development under left broad lig. size of woman's head.	Discovered 5 years ago.	Enucleation from broad lig. and extraperitoneal treatment of stump after Hegar Bladder dissected from anterior surface.	None except in broad lig. and to bladder.	Yes, tube above and iodoform guaze below stump.	St. Luke's Hospital.	R	.....	....	Chicago Gyn. Soc., May, 1888.

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VAGINAL HYSTERECTOMY.

No.	Name, and Date of Operation.	Age.	Married or Single.	No. of Children.	Pathological Condition or Symptoms necessitating Operation.	Duration of Disease.	Nature of Operation.	Adhesions.	Drainage.	Hospital or Private.	Recovery or Death.	Complications before or after.	Remarks and Subsequent History.	Elsewhere Reported.
1	Mrs. St—n. August 3, 1887.	29	M	1	Carcinoma of cervix.	Over a year.	Multiple ligatures of stumps with silk; catgut ligature about vaginal incision. Left vaginal and peritoneal wound open.	No	Iodoform gauze.	St. Luke's Hospital.	R	Cervix was amputated several mos. before.	No return. In good health.	Chicago Medical Soc., 1887.
2	Miss Ph—ps. Dec. 7, 1887.	57	S	.....	Papilloma of cervix and posterior vaginal wall, undergoing sarcomatous degeneration.	Discovered 1 year before.	Three hæmostatic forceps to each broad ligament. Catgut ligature to vessels about vaginal incision.	No	Iodoform gauze.	Woman's Hospital.	R	.....	Disease returned in two months; death in nine or ten mos.	Chicago Gynæcological Society, Dec., '88.
3	Mrs. G—n. Jan. 5, 1888.	47	M	2, last 25 years ago.	Fibro-sarcoma of whole uterus, with ulceration of cavity. Uterus size of small fist.	8 or 10 years.	Multiple silk ligature of stump. Catgut and two hæmostatic forceps below. Wound open.	No	Iodoform gauze.	Woman's Hospital.	R	Was curetted four times, viz.: 6½, 4½, 2 years and 1 month before operation. Thickening of right broad ligament.	So far, well.	Chicago Gynæcological Society, Mar., '88.
4	Mrs. Gold—t. March 4, 1888.	55	M	2, oldest 17 years	Adenoma of fundus and posterior uterine wall undergoing cancerous degeneration.	Unknown, but over a year.	Retroverted uterus and applied multiple ligatures. Wound left open.	No	Iodoform gauze.	Woman's Hospital.	R	Cystocele before and after.	Perfectly well, except cystocele.	Chicago Gynæcological Society, Mar., '88.
5	Mrs. Florence J—s. Mar. 25, 1888.	43	M	4, oldest 19 years	Three small interstitial fibro-myomata. Incurable stenosis. Several years of suffering and ineffectual local treatment.	Several years.	Multiple ligatures. Catgut to lower vessels.	No	Iodoform gauze.	St. Luke's Hospital.	R	.....	Cured.	Chicago Gynæcological Society, April, '88.
6	Mrs. O'B—n. May 17, 1888.	25	M	2, younger 2 years old.	Cervical carcinoma involving posterior wall of uterus, to int. os, and entire thickness.	Not well since birth of last child.	Anteverted uterus and applied a medium and a large sized pair of forceps to each broad ligament. Catgut below. Took out left ovary with ligament cut short.	Loop of intestine tied off and separated. Left ovary embedded in lymph.	Iodoform gauze.	Woman's Hospital.	R	Left ovary enlarged and adherent to bottom of pelvis. Its ligature sloughed out in three months.	No sign of a return so far.	Chicago Gynæcological Society, May, '88.
	Miss McN. June 9, 1888.	42	S	.....	Subserous fibro-myoma of posterior wall of cervix, size of goose egg.	A year or longer.	Multiple ligature of broad ligament. Catgut for lower vessels.	No	Iodoform gauze.	St. Luke's Hospital.	R	Unilocular cystoma of left ovary also removed, leaving ligature hanging in vagina.	Cured.....	Chicago Medical Society, June, 1888.

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EXPLORATORY LAPAROTOMIES.

No.	Name, and Date of Operation.	Age.	Married or Single.	No. of Children.	Pathological Condition or Symptoms necessitating Operation.	Duration of Disease.	Nature of Operation.	Drainage.	Hospital or Private.	Recovery or Death.	Complications Before or After.	Subsequent History and Remarks.
1	Mrs. Dr. —. Oct. 7, 1888.	30	M	One, premature.	Chronic salpingitis, ovaritis and retroversion with fixation. Failure of prolonged course of treatment to relieve pain and restore her to usefulness.	About 6 years.	Small median incision and separating adhesion of uterus to rectum. Could not release the tubes nor find the ovaries.	No	Woman's Hospital.	Recovery.	Weak heart, almost died from ether. Had a pelvic abscess discharge into rectum at beginning of disease.	Is now somewhat better than before the operation.
2	Mrs. At—l. Dec. 21, 1887.	28	M	0	Menorrhagia, pains. Failure of mental and physical vigor, unrelieved by treatment. Apparent enlargement of tubes.	Several years.	Median incision about 3 inches long. Found the intestines matted about tubes, and the hæmorrhage so profuse upon the least attempt at separation that I tied the bleeding vessels and desisted.	Glass tube for 3 days.	Woman's Hospital.	Death at end of 8th day, of heart failure.	Weak heart. Came near collapsing several times on operating table. Pulse always above 100.	Died at 8 a. m. while having her shoulders raised to take nourishment. Had had an unusually smooth recovery and felt perfectly well just before being raised.
3	Mrs. W G. McC—. Mar. 24, 1888.	26	M	0	Chronic incurable pelvic symptoms referable to appendages and incurable by prolonged treatment. Mind slightly affected.	Several years.	Median incision about 3 inches. Parovarian cyst of left broad lig. size of goose egg. R. appendages buried in lymph, and could not be separated. Separated a few adhesions	Glass tube for 3 days.	St. Luke's Hospital.	Recovery.	Piece of omentum size of Lima bean got into drainage tube and was torn out in removing it with considerable pain, but no after effects.	Husband thinks her mind greatly improved.

SUMMARY.

	Whole No.	Recovered.	Died.	Per cent. Recovery.	Per cent. Deaths.
Abdominal Ovariotomies	6	4	2	66.66	33.33
Vaginal Ovariotomies	2	2	0	100.00	.....
Abdominal Oöphorectomies	15	13	2	84.62	15.38
Vaginal Oöphorectomies	12	12	0	100.00	.....
Abdominal Hysterectomies	3	1	2	33.33	66.66
Vaginal Hysterectomies	7	7	0	100.00	.....
Exploratory Incisions	3	2	1	66.66	33.33
Total	48	41	7	82.92	17.08

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PATHOLOGY AND TREATMENT OF A DRY TONGUE.

BY W. C. CALDWELL, M. D.

Probably a more scientific title for this paper would be "The pathology and Treatment of Diminished Secretion from the Glands Connected with the Buccal Cavity," but the one given seems the more expressive, because everyone recognizes that a dry tongue is a symptom of profound depression of the powers of life. "The Pathology and Treatment of the Typhoid State" would be equally as expressive, but it is too broad and includes more than I desire to write about at this time.

I will present the subject in the following order:

I. Causation;
II. Pathological Significance;
III. Pathology; and,
IV. Treatment.

I. CAUSATION.

The three possible ways in which the tongue may become dry are either by increased evaporation from its surface, by diminished movement of the tongue, or by diminished secretion of saliva. The first two, no doubt, are factors in its production whenever the mouth is open and whenever the tongue lies motionless for hours unbathed in buccal secretions, as occurs in coma and in the typhoid state, the patient lying with his mouth open and his tongue motionless.

In health, if the tongue be held motionless, breathing through the mouth, there will be perceptible dryness in even ten minutes, so these can be factors in its production.

Coma does not usually continue longer than twenty-four hours without a dry tongue. Dickinson (Lumleian Lectures, 1888), does not think this due simply to the air passing over it, and cites as proof that where an otherwise healthy individual has the nostrils plugged there is no such dryness. This, though, does not prove it, because unlike in coma, the individual keeps the tongue moist by occasionally moving it about in the mouth; however, in coma I think it probable that not only is the tongue dry because it is motionless, but very likely there is some action on the centre in the medulla, which will be considered later.

But, undoubtedly by far the most important factor in the production of a dry tongue is diminished secretion from those glands which pour their elaboration into the buccal cavity, namely, the salivary, buccal, palatine, lingual, malar, and labial glands.

To determine how much diminished secretion has to do with causing the tongue to become dry, Dickinson has made many experiments on the parotid gland by catheterization. He says that "A tube passed into one of these channels in health could be made to drip saliva abundantly by the application of acetic acid to the tongue. When the tongue was dry it was usually impossible to obtain any by such means. With advanced and complete dryness I have never been able to get a drop; with lesser dryness often a little."

II. PATHOLOGICAL SIGNIFICANCE.

I have thought it well to say a few words about the grave pathological significance of a dry tongue as a means of impressing the great importance of its treatment. The gravity of this condition is made manifest by the fact that every one regards a dry tongue as a very unfavorable sign, and does all in his power to forestall its approach.

It is an unfavorable sign:

1. Because it retards digestion, and

2. Because it is evidence of profound derangement of the powers of life.

Diminished salivary secretion interferes with digestion in a number of ways, and perhaps the easiest way to show this is to give its functions, and then the effect of its absence will be more easily made apparent.

1. The saliva, by moistening the dry food, enables the tongue to roll it into a bolus which is easily swallowed; hence, when the patient has a dry mouth solid

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food is swallowed with great difficulty and is contra-indicated for this as well as other reasons.

2. On account of the law of chemistry that acids and alkalies are mutually attracted, it follows that when the bolus entering the stomach is saturated with alkaline saliva, the gastric juice rapidly penetrates it and promotes its digestion.

3. The ptyalin of the saliva converts starch into sugar, and in proportion as the saliva is diminished is this act interfered with. But probably it is not so much the loss of this conversion of starch into sugar as it is the effect it has upon the taste of the food, which in turn, as will be shown, stimulates further secretion.

4. But in addition to this means of stimulating taste, one of the most important functions of the saliva is to keep the taste-buds moist so that they can perform their specific function, namely, that of making eating pleasant and thus inducing us to eat, and also that of exciting to functional activity the salivary and gastric glands for the secretion of the digestive fluids.

Physiologically the secretion of saliva is stimulated reflexly by thoughts of food, by sight and smell, but mainly by taste when the food is introduced into the mouth. In sleep the senses convey no impressions to the centre; hence, during sleep very little saliva is secreted. Also, when the tongue is dry, when the epithelial covering and taste-buds are parched and shriveled, there is no sense of taste; and hence, equally so, there are no impressions conveyed to the centre to stimulate the secretion of saliva. The patient with a dry tongue has no taste, no appetite, and when food is placed in the mouth there is no response from the salivary glands.

5. But equally as important as the stimulation of the buccal glands is the synchronous stimulation of the gastric glands. While the luscious morsel is being rolled in the mouth, the gastric secretion preparatory for its further digestion in the stomach is stimulated reflexly by sense of taste; hence, when the tongue is dry, not only are the salivary glands at rest, but the stomach, receiving no influence ahead, is idle, unprepared, and surprised by an untimely visitor. Instead of meeting a rosy mucous membrane, with clear drops of gastric juice trickling down its walls, the dry, neutral, unchanged bolus comes in contact, possibly, with a pale, bloodless surface.

To the person in health, whose body is strong and vigorous, and who has a large amount of reserve vitality, such an interference with digestion for a short time might not make a great deal of difference, but to the patient struggling with some wasting or long-continued disease, whose powers of life are already taxed to their utmost—whose heart possibly is beating at the rate of 150 per minute, unable to stand the smallest fraction of further strain—to such a patient every ounce of blood pabulum absorbed is of the greatest importance to his life.

Hence, any interference with digestion when the powers of life are running low—when, on account of the adynamic condition, threatened dissolution is impending—is of the gravest moment; and it is usually when dissolution overhangs the patient, when he most needs good digestion, that the tongue is dry as a board seasoned in an August sun.

Too much cannot be said of the great importance of keeping the tongue moist in those self-limited acute diseases which have become asthenic, such as typhoid fever, pneumonia, scarlet fever, etc. A few ounces more of nourishment absorbed may determine the fate of the patient in whom we can almost hear the death-rattle. By this nourishment, during a few hours, he may be tided over the impending collapse and begin convalescence.

A dry tongue, also, is evidence of profound derangement of the powers of life, because, not only is the salivary secretion suppressed, but the same cause very likely suppresses the gastric, pancreatic, and biliary secretions; also it is evidence of grave changes

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in the blood, the great food supply for all the tissues.

III. PATHOLOGY.

The morbid anatomy of a dry tongue will not be noticed, but instead, the morbid physiology, which produces it by diminishing the buccal secretions. These secretions are produced by a complicated mechanism, consisting of numerous parts, any one of which becoming impaired, the secretion may be diminished or entirely suppressed. The pathology is nothing more than a description of the morbid actions of this mechanism and their cause, by which the secretion is either diminished, or increased, or changed in quality. For obvious reasons, in this paper only the pathology of diminished secretion will be considered; this being the main cause of a dry tongue, and often having a common origin with those other grave symptoms, indicating the typhoid state. A thorough knowledge of its mechanism will naturally form the data from which to deduce the rational indications for the treatment of that part of the typhoid state. But in order to understand properly morbid action of this mechanism, it will be necessary to study first this mechanism and its means of normal excitation; then we will be prepared to understand the ways in which it can be deranged and the agents which may impair it.

In presenting this, the following order will be used:

1. The mechanism of salivary secretion and its physiological excitation;

2. Possible derangement of the mechanism, which can diminish the secretion; and,

3. The various agents, including drugs and the morbid materials of disease, which, acting on different parts of the mechanism, may diminish the secretion of saliva.

For the production of any thing, there must be the raw material and the mechanism for its elaboration. In the production of saliva the essential elements may be classed as follows:

1. Secreting cells.

2. Lymph.

3. Nervous mechanism presiding over the intracellular metabolism and lymph supply.

This complicated secreting mechanism consists of secreting cells, adjacent to which are lymph spaces, containing the raw material which has been poured into them through stomata from the capillaries, and over the action of the cells and the lymph supply preside two nerve mechanisms—a central and a peripheral. The sources of this nerve supply are from both the sympathetic and cranial nerves, but for simplicity no description of the two sources will be given; neither will the peripheral mechanism be described. For all practical purposes in this paper this will not be necessary. The accompanying diagram, used to illustrate this mechanism, is entirely schematic, no attempt being made to give the anatomy. In it the peripheral mechanism is not shown, neither is there a separate representation of the sympathetic. The nervous mechanism, shown in the diagram, consists of afferent and efferent nerves and a centre in the medulla.

The afferent nerves convey impressions to the centre from taste, smell, sight, thoughts, and also from irritation of sensory nerves in various other parts of the body. The efferent nerves, probably six kinds in all, convey impulses from the centre to the glands. The trophic fibres continually convey impulses generated in the centre to regulate cellular growth and nutrition.

Probably ptyalinogenic (anabolic) fibres continuously convey impulses generated in the centre to regulate that continuous protoplasmic metabolism, the manufacture of ptyalinogen, for the intermittent production of ptyalin. The secreting fibres at intervals convey reflex impulses from the centre, producing secretory activity of the cells. The vaso-dilator and vaso-constrictor fibres preside over the arterioles, regulating their calibre and the quantity of blood passing

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through them. Probably regulating fibres preside over the stomata in the capillaries determining the quantity of lymph which can pass through them into the lymph spaces.

The centre in the medulla receives impressions from the afferent nerves and switches them onto the efferent nerves, by which influence the size of the arterioles and stomata are regulated, and also the activity of secretion; in addition, the centre generates impulses which pass along the trophic and ptyalinogenic fibres to the gland.

Physiologically the mechanism does not act except when it is set to work by reflex influence from taste, smell, sight and thoughts of savory food. Normally, when there is no reflex stimulation, there is no secretion. The normal excitation of the mechanism is illustrated by the accompanying diagram, in which the afferent nerves are shown conveying impressions from taste, etc., either directly or indirectly, to the centre in the medulla, from which they are reflected to the efferent nerves, along which they travel to the gland. This is the explanation of why the hungry boy's mouth waters when he sees the inviting pastry and cake in the baker's window, or when his nostrils are regaled by the exhilarating aroma arising from the steaming dinner-pot. These physiological facts can be used to advantage in retaining and creating an appetite in the invalid. When there is any interference in any part of the

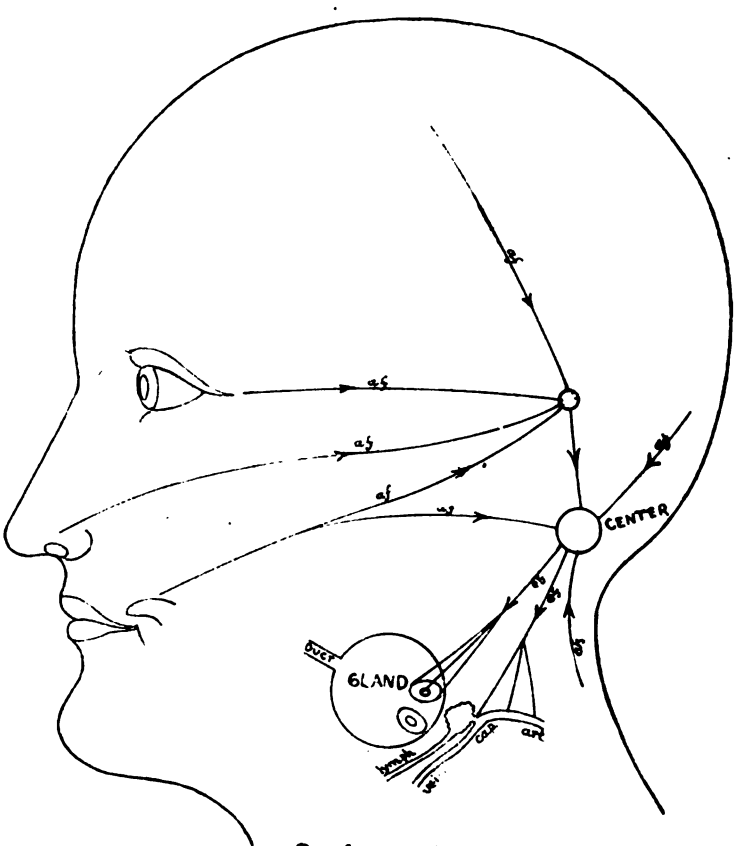

Diagram hypothetic and schematic.

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circuit from the afferent ends to the terminal fibres in the glands, the secretion is proportionally deranged. Hence, if from any cause, the circuit is broken in any part the normal reflex stimulation of saliva can not occur. And if this be continued long the mouth and tongue become dry The points at which disease and drugs usually break the circuit are the taste-buds, the centre or the terminal fibres in the gland. The nerves themselves are not so susceptible to drugs and disease.

The secretion of saliva is more or less intermittent, but the manufacture of ptyalinogen is going on all the time, under the influence of impulses generated in the centre, just as is the manufacture of mucinogen, pepsinogen, trypsinogen, etc.

To prevent confusion, it is well to keep clearly before the mind the distinction between the possible derangement of the mechanism and the various agents which can produce them; but while these should be kept apart, yet, for convenience, to prevent repetition, I will present them together.

The conditions necessary for the secretion of saliva are normal lymph supply, normal lymph, and normal secreting cells, normally stimulated; hence the secretion is diminished:

1. By lessening the lymph supply.

2. By changing the quality of the lymph.

3. By depressing the functional activity of the cells.

The lymph supply is lessened:

1. By reducing the quantity of the blood in the body. This is made known by the person who has lost blood calling for water to quench his thirst. The tongue becomes dry in profuse diarrhœa and where there is free perspiration.

2. By contracting the arterioles so that a smaller quantity of blood passes through the gland, and hence less lymph enters the spaces, the food reservoir of the secreting cells. The calibre of the arterioles can be reduced either by increased action of the constrictors, or diminished action of the dilators.

While physostigma stimulates the secreting cells, it also stimulates the constrictors; hence, while at first it increases the secretion, later, as soon as the stock of lymph in the spaces is used up, the flow of saliva is diminished because the arterioles are contracted. The same phenomenon occurs when the sympathetic is stimulated by electricity. I have not been able to find any record of experiments on diminished action of the dilators causing contraction of the arterioles.

3. By closing the stomata of the capillaries. Atropine acts on the terminal ends of the fibres, presiding over the stomata probably, causing them to be closed so that the lymph cannot pass through them into the spaces, although at the same time it increases the blood supply by dilating the arterioles.

4. By inhibiting the functional activity of the centre in the medulla, so that the normal impressions from taste, etc., can not be transferred to the efferent nerves to stimulate cell activity and blood supply. Morphine dries the mouth by acting directly on the centre, depressing it. Fear parches the tongue, probably, by afferent impressions from the brain passing to the centre inhibiting its action. So with sudden bad news, worry, sleeplessness, delirium, and pain; however, it is possible that these may also have an inhibitory action on the vaso-dilators, rendering the glands pale and bloodless. Morphine and pain may both dry the mouth, the morphine directly and the pain reflexly, so that both render the centre functionally inactive, yet a small dose of morphine, by relieving the pain, and, hence, the reflex inhibition, may moisten the mouth.

It is probable in apoplexy that the pressure affects the centre and helps to cause the dry tongue. Though sometimes disease of the brain increases the secretion. Stimulation of the cortex cerebri of a dog

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near the sulcus cruciatus sometimes is followed by secretion (Landois). Pulling out a loop of intestine inhibits the reflex secretion of saliva (Pawlow). The afferent impression is conveyed to the medulla, where it inhibits the action of the centre. It is very likely that partly in this way is the dry tongue in typhoid fever produced. The irritation from the ulcerated and tympanitic intestine is conveyed by the sympathetic to the spinal cord and from there to the centre. Of course, the depraved condition of the blood has much to do with it, but probably not all, which supposition is still further strengthened by the well-recognized fact that turpentine is of great service in these cases.

The quality of the lymph is changed by drugs and also by the products of disease circulating in the blood, and by the effect they have in the course of days or weeks upon the nutrition.

The various changes in the lymph may be enumerated as follows:

1. It may be saturated so that there is no available water.

2. It may contain toxic agents.

3. It may be almost devoid of food elements.

1. Every one knows that after eating a salty meal great thirst follows. The salt has suppressed the salivary secretion because it has great affinity for water, and hence, in proportion as the blood contains salt, is there less available water that can be used in secretion. The same effect is produced when any other deliquescent substance is in the blood, whether it be a drug or a product of disease.

It is very probable that the excessive quantity of histolytic waste circulating in the blood of the fever patient has much to do with his thirst, and, later, his dry tongue, though, of course, the evaporation on account of the high temperature has its effect in producing thirst, just as we become thirsty on a hot day after freely perspiring.

2. Just as some of the vegetable alkaloids and mineral drugs introduced into the circulation act as antisialogogues, so it is probable that some of the numerous leucomaines produced by the various diseases act as antisialogogues.

3. After the patient has been sick for some time, the digestive organs, along with the others having suffered, they now in turn increase the trouble further by their inability to supply sufficient food. Gradually the blood becomes more and more impoverished. This is a most important factor in salivary depression. Not only are the cells deprived of raw material from which to elaborate the fluid, but they and all the other parts of the mechanism have been starved till they are unable to work.

The functional activity of the cells may be diminished:

1. By lack of stimulation. This may be due to failure of action of the taste-buds or of the centre or of the terminal fibres in the gland. When the tongue is dry the taste-buds are functionally inactive, hence no impression is conveyed to the centre, and so, in addition to the depression of the powers of life which has produced the dry tongue, another factor is developed to still further depress the system, for taste is gone, and hence there could be no stimulation of saliva were the glands themselves able to respond. Or, again, as has been shown, stimulation can not reach the glands if the centre fails to transfer, or if its course is cut short at the terminal ends in the gland.

3. By direct depression of their activity. This is probably produced by leucomaines as well as by drugs. It is sometimes the result of disease of the glands, as in mumps.

Hence, in conclusion, it may be postulated that in order that there may be physiological secretion there must be:

1. Normal secreting cells.

2. Normal nervous mechanism—end organs, centre and terminal fibres intact, so that there is no break in the circuit.

3. Proper supply of blood, containing sufficient amount of nourishment and water and free from antisialogogue leucomaines.

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And it may also be postulated with equal positiveness, when the tongue is dry from diminished secretion, that there is derangement of some one of them. Either the secreting cells are deranged, or the blood supply is imperfect or poisoned, or the nervous mechanism is not intact.

IV. TREATMENT.

The object of treatment is to improve digestion so that the vital organs may be fed, for without nourishment they can not work long in health, and much less when they are already wasted, weakened, and grappling with some malignant disease.

The rational indications for treatment are learned by a survey of the possible points of the mechanism that can be deranged, and then a determination of what point is at fault. If the centre is at fault, and treatment be applied empirically at the periphery, little success can be expected from such a course.

The thing to do is to find the defective point and repair it, if possible, just as the watchmaker looks for the broken piece and replaces it.

The indications for treatment based on the pathology may be classified as follows:

1. To improve the lymph supply.
2. To improve the quality of the lymph.
3. To improve the functional activity of the secreting cells.

As the different parts of the organism are so closely related and dependent on each other, the improvement of one often improves another; hence, in filling one indication sometimes another may be satisfied, so there is no sharp line of demarkation between these indications.

QUANTITY OF LYMPH.

1. If the dry tongue follows profuse hæmorrhage, of course replenish with water and liquid food.

If lymph is deficient from excessive discharge, as occurs in diarrhœa where the stools are copious and watery, control the diarrhœa or soon another factor of disease will appear—failure of digestion from suppressed secretions. If it be already present, in addition to checking the alvine discharge, attention should be directed to keeping the buccal cavity moist, to avoid further adynamia and collapse. For this, see treatment of the taste-buds. If the quantity of water in the blood is deficient on account of excessive evaporation during high temperature, allow the thirsty patient to drink water freely to refill the empty vessels, unless from some cause it should produce vomiting.

2. If, from any source, impressions travel to the centre, which either inhibit its action, or, when switched on to the efferent fibres in some of the possible ways, inhibit secretion, then give such drugs as either prevent such impressions being conveyed to the centre, or depress the centre so that they will not be transferred to the glands.

If the patient with parched tongue is sleepless and tosses to and fro on his uncomfortable bed, or worse, if he is delirious, give bromides, hydrate of chloral, urethan, or some other hypnotic, to arrest the pathological cerebration which is conveyed to the centre and interferes with secretion. This is the explanation of why the dry tongue of the delirious patient, after a few hours' refreshing sleep, sometimes begins to moisten.

For the same reason, if, in a continued and low grade of disease, there is much pain, morphine judiciously given will often moisten the dry tongue. Also, for the same reason, partly, turpentine is of such great benefit where there is inflammation of the mucous membrane of the intestine, with dry tongue.

The value of turpentine in chronic intestinal catarrh, with dry, glazed tongue, also in typhoid fever, is well recognized by everyone. Turpentine is an antiseptic and arrests fermentation, removing the tympanites; it also relieves intestinal congestion by giving tonicity to the intestinal circulation, by improving the cutaneous capillary circulation, and by lessening the catarrhal inflammation or the ulcerated condition of

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Peyer's glands, the impressions are shut off which, transmitted to the centre, inhibit secretion. But in addition to this means of moistening the tongue, turpentine undoubtedly does much as a diffusible stimulant, acting on the heart and vaso-motor centre, raising the blood-pressure and producing a sense of exhilaration. Yet, without its action on the intestinal canal, it would fall far short of its present position in the treatment of typhoid fever.

If the function of the centre is compromised by pressure from cerebral hæmorrhage or inflammatory exudate, of course all that can be done is to treat the disease.

QUALITY OF THE LYMPH.

1. If there is deficient quantity of available water in the blood on account of saturation with hygroscopic, pathological, retrograde metamorphoses, give water freely, not only to supply the need, but to wash out the vascular and lymph channels, clearing away as fast as possible the débris from the glands.

2. At present not much is known of the physiological action of leucomaines, but if the secretion is suppressed on account of the blood being charged with antisialogogue leucomaines, inhibiting the centre, stimulating the constrictors, paralyzing the dilators, closing the stomata, or depressing the secreting cells, in lieu of any thing better till further research has shed more light, exhibit plenty of water to wash them out of the system through the kidneys, skin, and intestines.

Also, bathe the fever patient one or more times daily, to promote the action of the sweat-glands. For other reasons, add one-third alcohol to the water for the bath.

Water taken internally is of unquestionable service in disease. When large quantities are taken, large amounts pass out of the organism through the excretory glands, and with it is carried the retrograde products soluble in water; also those rendered soluble by the action of medicine. Water also washes out the intestinal canal, removing irritant material, and preventing reabsorption of the waste excreted through the intestinal glands. When given with medicines which are to act after entering the blood, it prevents irritation and promotes their absorption. When taken after the food it promotes absorption of the peptones, and hence increases further digestion. The peptones, like all products of fermentation, arrest the succession of complicated reactions which take place in the process. Water increases cellular metabolism, especially in the weak, whose cells have a low grade of vitality, and in those depraved by disease. Water is necessary for the metabolism of all cells, but in those cells of poor vitality, water is a tonic. It greatly increases their functional activity, increasing both the production and excretion of urea, sulphuric and phosphoric acids. In these weak cells it probably increases their nutrition by washing out the waste and supplying needed water.

But too much water is said to do harm. It may cause dyspepsia by unduly diluting the gastric juice, or, if the stomach is irritable, it may produce vomiting. It is also said to destroy the red corpuscles when the blood is diluted too much.

Yet it seems to me that there is far more danger of using too little than too much. Undoubtedly, when there is a high and continued fever, rapidly melting down the nitrogenous structures and filling the blood with urea and urates, that the free, frequent, and continuous exhibition of water is indicated to prevent asthenia, and if it is already present, to aid in removing it.

3. If the blood is so profoundly depraved that it is destitute of proper materials to supply the cells with sufficient food, in addition to treating the disease, every effort should be made to improve the digestion. This will be noticed a little later. This may accomplish very little, but that little may be sufficient to sustain the heart and respiratory function a few hours longer.

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FUNCTIONAL ACTIVITY OF THE CELLS.

Very common causes of depressed functional activity of the secreting cells are lack of stimulation on account of the dry, functionally inactive taste-buds, and lack of food from failure of digestion in general.

Much can be done to improve the taste-buds by acting locally. Keep the gums, teeth, and tongue well cleansed by frequent washing with some appropriate antiseptic wash, which puts the epithelial covering of these structures in as healthy a condition as possible. Instead of giving plain water, allow the patient to have acidulated drinks, because the acid stimulates secretion from the alkaline mucous membrane.

Where the tongue is dry, brown, encrusted, and hard, remove the coat as much as possible, and for a few minutes before giving liquid nourishment, place some crushed ice on it, and allow it to remain. The ice will at first cause anæmia, which will soon be followed by a local hyperæmia, resulting in increased nutrition of the taste-buds. The tongue for the time being will be red and moist. If this be persisted in, in typhoid fever, pneumonia, and other low fevers, however little effect in itself it may have, it will often improve digestion enough, so that in a few days the improved digestion is sufficient to keep the tongue moist, and thus in turn again improve digestion and the powers of life.

But probably, of any single agent for improving digestion when the tongue is dry, the most potent is some acceptable, pleasant-tasting preparation of alcohol.

In the typhoid state this should never be given alone, but always with liquid food, the explanation of which will soon follow. Alcohol is superior to the other diffusible stimulants for continuous exhibition in many ways. Of course turpentine has its unique place when the intestinal canal is a cause of the dry tongue. But no other drug can take the place of alcohol in the treatment of the typhoid state. It is pleasant to take, and does not interfere with digestion by repugnance to it. It produces hyperæmia of the mucous membrane, and both directly and reflexly increases the digestive secretions. At the same time reflexly, and a little later directly, it dilates the cerebral arterioles, causing a feeling of exhilaration, which is also increased by simultaneous stimulation of the heart, so that the tired, exhausted patient, under the excitement, has more couarge to take nourishment.

If alcohol were given alone, without food, it would stimulate the heart and produce hyperæmia of the digestive canal. This expenditure of energy would be wasted, for there would be no food in the canal to be digested. Hence, in giving alcohol to sustain the heart, always give food. Alcohol and liquid food should be given together in small quantities every two hours.

Alcohol occupies the peculiar position of being a stimulant, as ether, chloroform, and turpentine, and at the same time of being a food, as such carbo-hydrates as starch and sugar. Like ether, it liberates the energy which during health has been stored up, and, like the carbo-hydrates, it supplies force itself by being oxidized, and in addition to this, while it is itself oxidizable, it has the remarkable property of diminishing oxidation of the tissues. It arrests oxidation of the tissues by rendering the hæmoglobin less active, and by abstracting the oxygen from the tissues—usually stopping the oxidation process at the stage of fat.

Alcohol is a valuable agent in the treatment of the typhoid state, because it improves digestion, sustains the heart, supplies force, lessens oxidation, and quiets the restless brain.

Not only when the tongue is dry, but before the system has been so much depressed, in continued disease, where the patient is on liquid diet for days, the food should be seasoned with proper quantity of salt. This is specially overlooked when the patient is on milk diet. Of course,

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there is some salt in milk, just as there is in meat, but not enough, except in normal mother's milk, where the babe only needs the salt it contains. However, when cow's milk is used, either for the babe or for the sick, it should be salted, the salt preventing solid coagulation of the cow's milk by the gastric juice. Salt has important uses in digestion and nutrition. It is necessary for the secretion of the hydrochloric acid, which in fevers is usually suppressed long before the peptic secretion. It is also used in the production of the bile salts, and that portion which enters the blood, in some way is necessary to the vital processes in producing urea and carbonic acid.

When the tongue persistently remains dry, in spite of all these means, the frequent administration in small quantity of alcohol and peptonized beef, milk, or gruel, which requires no digestive help from the crippled salivary and gastric glands, may be slowly absorbed by the sluggish circulation in the gastric mucous membrane in limited quantity, but sufficient to furnish a little nourishment to the starving secreting cells, which may be manifested by a slight moistening of the tongue and exfoliation of the dead coat.

It is not only important to remove, but equally so to prevent the development of, a dry tongue, and in attempting to do this no pains should be spared in using all those apparently and singly insignificant means of exciting taste and increased desire for food. Relishes and aromatics should be judiciously used in flavoring the food to suit the peculiar whims of the patient. It should be remembered that smell and sight, and the thoughts which they suggest, are often powerful agents in their action on the digestive tract, advantage of which should be taken, preparing the meals so as to be as inviting and as little repugnant as possible. Here is a chance for the trained nurse to show her taste, judgment,and culinary ability. She who, by her tidiness, taste, and good cooking, caters successfully to the capricious appetite of the fever-stricken patient, does as much for the sufferer as the physician.

The conclusion to be reached from the above is, that in continued fevers, while medicines can be of unquestionable value, yet, without the copious use of water and palatable, nutritious liquid food, at short and regular intervals, they are of little value.

168 South Halsted Street.

EDITORIAL.

EXERCISE AND FATTY HEART.

Recently there has been quite a revival of the suggestion, made many years ago by Professor Stokes of Dublin, of the advantage resulting in fatty heart from systematic muscular exercise, as by gymnastics, mountain climbing, etc.

Doubtless, within certain limits, this advice may be followed with advantage, either with or without medication; but probably the greatest danger attending such efforts lies in the difficulty of securing moderation, and progressive increase in the amount of the exercise,without which danger to life would be materially augmented. Similar debility of the recti muscles is frequently found in cases of asthenopia, and is benefited by systematic and progressive exercise of those muscles. Both instances are but illustrations of what has been so long and so well known of not only the advantage but the necessity of proper muscular exertion, confined within the recuperative power of the muscles exercised. It seems requisite that old truths should often be retold, in new ways and with new illustrations, that sight of them shall not be lost. At present this is one of the illustrations, with a useful and practical object in view. It is to be commended if confined to the limits of safety, but the dangers, as well as the advantages, should be fully presented, with reliable guides to the recognition of impending danger, and a safe course out of it. With-

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out these there will doubtless be other victims added to the list of those who have spasmodically evinced more enthusiasm than discretion in the matter of physical exercise, especially in the now popular athletics.

THE NEED OF A MEDICAL REFERENCE LIBRARY.

At the present time there is considerable attention concentrated upon the Newberry Library, which is being organized here, and an effort is being made to secure the establishment of a medical department in it. It is understood that this is to be strictly a reference library. The endowment is ample to make it complete in all departments of science and art, if the money be properly expended.

There are two things that are essential to any important library—books and a capable librarian. For the Newberry Library such a librarian has been secured, and if too much money be not expended in monumental buildings, as has too often happened, so that the essentials have ever afterward suffered, the Newberry Library may be made of inestimable value for reference. It is very desirable that such a mistake be not repeated here, as making the building of first importance and its contents a secondary consideration.

Chicago has become an important medical centre, with several medical colleges, and the medical men resident here need the advantages which a large medical library of carefully selected books of reference would afford. Physicians from other points, especially in the interior of our country, would also find it of great assistance to them in their literary work. The library of the Surgeon-General's office of the army in Washington affords such facilities, especially for Eastern physicians, but it is almost inaccessible, because of its remoteness, for physicians residing in the interior. The present occasion affords an opportunity of supplying this need, and the trustees of the Newberry Library should recognize the fact and provide for a medical department, to be in keeping with what it is proposed to make the other departments. It would be incomplete without a medical department thus equipped. Access to such a medical library would not only be a great convenience, but the advantage to medical science would be incalculable.

The State has appropriated money for moderate libraries in some of its charitable institutions, but political and other considerations led to the locating of these institutions in various parts of the State, and the libraries are not available except to a very limited number. Chicago has never made a successful effort to build up a medical library, and there is now no collection of medical books in the city sufficiently complete for reference. In the Chicago Public Library there is a limited medical department, containing books obtained from various sources, but it is without a special librarian devoted to its care and prosperity alone. With the co-operation of the profession, and the library officials, this incomplete collection of books could be made a servicable library in time, but probably not such a reference library as is needed. A librarian devoted especially to the interests of the medical department is a requisite. The profession should support the administration in its efforts to increase the usefulness of this department, and aid in contributing to it, even more than it has already done. The library should contain the current American and foreign serials in medicine and biology in different languages. These journals should always be accessible.

Complete files of the same serials, running back as far as possible, would be a desirable acquisition, and a librarian devoted to this department alone could do much to secure them and other matter of various kinds that would materially increase the value of the present medical department for the use of the medical profession.

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OBITUARY.

Professor Elkanah Williams, M. D., of Cincinnati, died at Hazelwood, Pennsylvania, October 5, 1888. He was born in Bedford, Indiana, December 19, 1822. He graduated in medicine in Louisville, Kentucky, and located in Cincinnati. Soon after Professor Helmholtz made known the ophthalmoscope and its revelations, Dr. Williams visited Europe and devoted himself to the study of diseases of the eye, especially in Germany and France, for nearly three years. In 1855 he returned to Cincinnati, and was soon elected Professor of Ophthalmology in a medical college. The honor has been accorded him of being the first scientific ophthalmologist established in the United States. For more than thirty years he was a successful practitioner in his favorite branch, as well as a teacher and writer of recognized ability. His professional attainments and his personal worth inspired confidence in all who came in contact with him, and his social qualities made friends of all who knew him well. He was a man among men. Two years ago, whilst he was engaged as president-elect in the work of organizing the section of ophthalmology in the Washington International Medical Congress, it was discovered that his health, previously impaired, was rapidly failing, and, on consultation with his medical advisers, it was decided that he should abandon for an indefinite time all work and anxiety. After that decision, in writing to a colleague and expressing his regret at this enforced abandonment of his work in connection with the Congress, in which he took great interest, he said: "Much as I would like to serve the Congress, when I know that it is prejudicial to my health, I feel it my duty to resign; health is precious above all considerations."

For more than a year it has been manifest that his most serious affection was organic disease of the brain, and that was the immediate cause of the death by which America lost her Nestor among scientific ophthalmologists, and within a few months of the demise of his friend and confrère, Professor C. R. Agnew, than whom no two men in the United States did more to secure recognition and respect for scientific specialism in the medical profession. All will concede that in the death of these two great and good men the medical profession and our country have sustained a serious loss.

SOCIETY REPORTS.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS.

The first annual meeting was held at Washington, September 18, 19, 20, 1888.

First Day—Morning Session.

The President, Dr. W. H. Taylor, of Cincinnati, called the meeting to order and delivered his annual address, in which he said: On the assembling of this association for the first time, it may be proper to demand a reason for its existence. The daily round of professional experience impresses the practitioner of medicine with the incompleteness of his knowledge, and to the man who sees in his avocation something more than a mere source of pecuniary profit there must arise the desire to know the yet unknown. No argument is needed to prove the assertion that the united effort of many is more fruitful than the inharmonious working of individuals; hence the propriety of co-operative organization. It may be admitted that the motive of our association is, first, our own advancement, yet it cannot be considered undue self-adulation if we believe that from such combined effort good must come to the profession at large, and necessarily through the profession to those who, above all others, are interested in the perfection of our knowledge and skill—our clients.

The activity of the past decade has given us so many important facts that it would scarcely be hyperbole to say that a new practice of obstetrics and gynæcology has

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been created in that time. But the very fact that there has been such progress, and that so much that but a few years ago was impracticable or even unknown is now feasible and well known, only stimulates us to better work and further advance; and, with the vast range of study and diversity of subjects now comprehended by the science of medicine, it is clear, beyond controversy, that advance can be made only by men directing their efforts to a limited field of work. Such, gentlemen, I believe, are sufficient reasons for our presence here to-day as the American Association of Obstetricians and Gynæcologists.

An opinion has large credence among the laity, and is indorsed by some members of our profession, that intentional abortion is a common crime, while statisticians and social scientists see in the decreasing fecundity of American women clear evidence of the truth of this charge. That some women are guilty admits of no doubt, but that it is so universal an evil as sensational literature, especially of non-professional origin, would indicate, I do not believe. Permit me to direct your attention to a more demonstrable cause for diminishing fertility. I need but remind you of the deleterious influence of social habits and circumstances over the functions and physique of women, and, consequently, how many fashionably-educated girls are incapable of completing the process of maternity. Those who are fond of charging American women with the crime referred to, cite to us the rich, the educated, the refined, as guilty, while their sisters who are less favored financially, and are humbler socially, bear their due proportion of children. Now, the first class are the physically feeble, the enervated, and therefore incapable of carrying the process of reproduction to its ultimate perfection. A lack of fecundity on the part of a woman is often due to endometritis, and is overcome by the cure of the diseased condition. Many cases of sterility after the birth of one child are due to inflammatory processes of the genitalia. Accept these statements as true, and a rational explanation of the asserted evil is found, which at once transfers it from the domain of ethics and morals to within the pale of our professional care, and at the same time vindicates those whom we look upon as the purest and best from the indiscriminate charge of the murder of their unborn children.

I believe the influence of the genitalia over the general system, especially in its nervous manifestations, has been exaggerated; that entirely too much attention has been paid to the genital organs in connection with the neuroses.

A subject of practical importance, urgently demanding attention from the obstetrical section of our association, is the constantly-increasing inability of women, who should be "nursing mothers," to furnish milk for their infants. Many women who have borne children are incapable of nourishing them; probably about 40 per cent. with us, and, according to Escherich and others, in Bavaria, 59 per cent. of mothers become incapable from physical causes of nursing their children within two months after delivery. In a large degree this is the result of habits tending to impair the integrity of the mammary glands.

Another topic well worthy of our most careful thought is, What can be done to mitigate the pains of labor? My impression is that, with the great majority of obstetricians, but little is done to lessen pain during a large part of the process of delivery. With the abundant therapeutic resources of the present day, we ought surely to divest this ordeal of the intensity of its pain. I trust by another meeting to report upon some experiments I am now making.

It has been said, as civilization progresses the tendencies of all human diseases has been to assume the neurotic type, and also that diseases become more complex in their manifestation. On the other hand, the recent advances in antisepsis allow the hope that some day we may

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eradicate the septic diseases of child-birth, and that our grand advances in surgery shall qualify us to cope successfully with what, a few years ago, would have been considered a helpless and hopeless condition. Science knows no sentiment, and we can cherish the achievements of the past only so far as they aid us for the future. Science almost every day brings a new surprise, so we may confidently anticipate advances and successes which shall as far surpass our present attainment as these do those of the past generation, and happy may we count ourselves that this association shall contribute to these beneficent attainments.

Dr. A. CORDES, of Geneva, Switzerland, sent two memoirs, which were read by the secretary. The first paper was on the "Treatment of Puerperal Eclampsia," and contained a report of four cases treated by the injection of bromide of potassium and chloral hydrate, with abstraction of blood over the mastoid processes by leeches. He advocated this treatment in preference to general bleeding, chloroform, and arterial sedatives. He also deprecated any interference with the genitalia, such as digital examination, passing the catheter, etc., which he thinks are liable to provoke convulsions.

The second paper was "The Treatment of Endometritis" by injections of pure nitric acid, and was illustrated by three cases in which this method was employed. The writer preferred this method of treatment to that by the curette, in cases where there were fungosities or other irregularities of the intra-uterine surfaces.

Dr. A. LAPTHORN SMITH, of Montreal: I would like to be permitted to say a few words on this very important subject. I think we should lay down three principles to guide us in these cases. Puerperal convulsions are due to mechanical pressure on the renal veins. If that remains too long, it will bring on uræmia. Uræmia continued long enough produces permanent damage to the brain. We should empty the uterus and take the pressure off the renal veins at the earliest moment we are sure such a condition is in existence. I have acted myself for two or three years on that plan, and have had no cause to regret it. The only regret I have is that during five or six years I adopted the method of waiting. Although none of the patients died, all of the children did, and one of the patients was in an asylum several years. I think if premature delivery is brought on under antiseptic precautions, we will in all cases save the woman, preserve her brain intact, and occasionally save the child. But the child is, however, a secondary consideration.

Dr. BYRON STANTON, of Cincinnati: I would like to ask if bringing on labor is not adding fuel to the flame; if it is not better to defer as long as possible the induction of labor, and treat the renal condition; place the patient in better condition for delivery. We know that convulsions do not always cease at delivery.

Dr. A. LAPTHORN SMITH: I do not think you should wait until the woman has convulsions. If you know that the urine is loaded with albumen, bring on labor without delay. Every moment of delay you increase the danger.

Dr. JOSEPH PRICE, of Philadelphia: The gentleman that has just taken his seat expresses a great deal of wisdom in his remarks. Mr. Tait calls attention to the frequency of such troubles in elderly primiparæ. It is claimed that it is exceedingly common in that class of patients.

"The Indications for Drainage in Abdominal Surgery" was the subject, of a paper by Dr. JOSEPH PRICE, of Philadelphia. He said the object of his paper was to point out the indications for drainage in abdominal surgery. At the present time, there is the greatest variance in the opinions and practice of surgeons upon this point, and some fixed rules, such as are laid down in other departments of operative surgery, are needed.

First: Is there danger from the reten-

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tion of fluids in the peritoneal cavity? Second: Is the drainage-tube a safe means of obviating this danger? Third: If the tube involves danger, what are the comparative risks from its employment or omission? That the peritoneum will relieve itself of exuded fluids is well known; and it is also an established fact that the free use of saline cathartics will often arrest acute peritonitis. Experience has also shown that these resources often fail, and it is necessary to re-open the abdomen, irrigate the peritoneum, and insert a tube; this, too, in cases where no pus is found. It is a fallacy to believe that extensive adhesions are alone an essential indication for drainage, since free exudation can arise from severing slight adhesions and extensive bleeding follow slight oozing after the patient reacts. This latter fact was illustrated in a recent case in which bloody exudation, which seemed almost nothing at the close of the operation, flowed freely through the tube for ten days afterward. A great difficulty is presented in deciding a case to be simple, particularly in cases of inflammation of the tubes and ovaries. Indeed, no one can decide during an operation whether the inflammation is simple, purulent, or specific. Herein is an additional indication for the cautery used by Keith. Drainage removes the pabulum of infection. In case of very extensive adhesions and positive hæmorrhage, the value of the tube cannot be questioned.

The danger involved in inserting a simple glass tube in the abdomen is very small. The involvement of the peritoneum in the perforations of the Bantock tube has been urged as an objection to its frequent use. This danger may be entirely obviated by carefully packing the tube lightly with absorbent cotton, which also, by capiliarity, facilitates drainage. The tube should be rotated occasionally and slightly elevated. When kept clean, by frequently changing the cotton, with careful attention to that part of the incision through which it is introduced, there is no appreciable danger of infection. I have reached this conclusion after using it in extreme cases of pelvic adhesions, extra-uterine pregnancy, hysterectomy, pus tubes, and so-called simple operations. I have never had a single fatal result which could be attributed to the use of the drainage-tube, and in numerous cases I have seen serious trouble relieved by its introduction.

Irrigation is an important adjunct to drainage in abdominal work. It is of the utmost value in removing débris, clots, and shreds. Pouring water through the incision is not so efficacious as its introduction by a syringe, which makes an uninterrupted current. I place the nozzle of the syringe through the lower angle of the incision, and with two fingers retract the intestines, thus giving free exit to the current. In this way the entire abdominal cavity can be thoroughly washed out. I can not see any advantage in Professor Martin's method of drainage through the vagina. To close the ventral incision to make one in the vagina seems to me unnecessary and illogical. If drainage be decided upon, the site of the incision offers every requisite.

All chemical solutions are unnecessary and positively harmful. Such agents introduced into the peritoneum have done much mischief. The intestinal pain so often following operations in which solutions were applied is, in many cases, due to the adhesions formed in consequence of their use.

In deciding the important question, When shall the tube be removed? we should look to the character and quantity of the discharge. When this is clear and sweet and scant, the tube should be removed. It has been urged that the tube delays union and thereby increases the danger of ventral hernia. This I do not believe. A very long incision, getting up too soon, and discarding the bandage too early, are the most potent causes of this accident. Indeed, I believe the objections urged against the use of the drainage-tube are theoretical and deserve no consideration, in view of the important and serious perils eliminated by its

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use, viz., protection of the peritoneum from infection. The faith I have placed in it has been fully justified by the results attained.

Dr. CLINTON CUSHING, of San Francisco, presented a contribution to the study of "Pelvic Abscess." He defined a pelvic abscess to be any collection of pus in the cavity of the pelvis which exists in the tissues outside of the cavity of the hollow organs, such as the bladder, uterus, Fallopian tubes, and the rectum. He was becoming more and more convinced each year of the truth of the statement made by Noeggerath, that uncured gonorrhœa in the male is a very frequent cause of salpingitis. A recent case came under his observation, in which this theory was verified in every particular. A woman twenty-seven years old, had been seduced nine years before; since that time she had apparently led a moral life, but had suffered from chronic pelvic abscess, resulting in repeated attacks of pelvic inflammation. She had lately married, immediately following which all her symptoms became very much aggravated, while the husband himself contracted a severe urethritis, which resulted in perineal abscess. Her case becoming serious, he saw her and diagnosticated a probable pelvic abscess. Upon opening the abdomen the right Fallopian tube was found distended with pus at its larger extremity, and a pelvic abscess containing several ounces of pus. He removed both tubes and ovaries. A microscopic examination showed gonococci present in both tubes, mingled with the pus. The secretion of the urethra of the husband also contained gonococci. This case would seem to demonstrate that the woman had been infected with the gonorrhœa nine years before; that its specific character remained in the Fallopian tubes, causing frequent attacks of pelvic inflammation; that the husband had contracted the disease of the woman; that the sexual relations had aggravated the already existing disease of the woman, resulting in the formation of the pelvic abscess, which necessitated operation. She recovered without a bad symptom.

In another case, he opened the abdomen and found that a portion of the abdominal cavity below the umbilicus was an immense sac of pus, containing at least a gallon. A counter-opening through Douglas' pouch was made, and a drainage-tube drawn through the abdominal opening into the vagina. On the second day the bladder sloughed, the urine escaping into the pus cavity. An artificial vesico-vaginal fistula was formed, that the urine might drain from below, and thus enable the pus cavity to heal. At the end of the year the cavity was healed, the abdominal wound was closed, the vesico-vaginal fistula was repaired, and the patient restored to health.

Dr. JOSEPH EASTMAN, of Indianapolis: I wish to remark with reference to the drainage-tube and dilating trocar, that Professor Martin, of Berlin, has been using the ordinary dressing forceps, forcing it through the vault of the vagina, seizing the drainage-tube, and drawing it up in that manner. I have in that way been using the Bozeman dressing forceps, simply sharpening their points.

I was much interested in the paper of Dr. Price. I believe, in a publication of mine, I made the statement that I would drain upon the slightest excuse. I still hold to that. As to the question of permanent drainage, Dr. Wylie, of New York, speaks of establishing permanent drainage. I do not know how that is to be done. In my experience, and that of others, I find that, in at least a week, nature has covered in the tube with plastic material. In the first ovariotomy by Dr. McDowell, he allowed the ligatures to hang out of the abdominal wound. I am not sure but that it is about as good drainage as we ever had or will have. It is good capillary drainage. In my experience in fifty-one cases, I have not had a hernia except in one case. That was where I had to leave the drainage-tube in over a week. It seems to me the key to the situation is in bringing the abdominal layers into exact

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apposition. I am satisfied that we must not decide for either vaginal drainage or abdominal drainage exclusively.

Dr. E. E. MONTGOMERY, of Philadelphia: The members of the association are greatly indebted to Drs. Price and Cushing for their practical papers on a subject of the greatest importance to those practicing abdominal surgery. I take it, in the practice of this department, we are desirous of using no measures unnecessarily, and on the other hand of leaving undone nothing that is important for the relief and salvation of our patients. With this in view, it seems to me that it is exceedingly important that practical indications should be laid down for the treatment of such cases, to make sure the class of cases in which drainage is indicated and necessary, and outline those in which it is not required. In many cases the necessity of drainage may be obviated by the subsequent care of the patient. If we place the patient on a restricted diet, or diminish the amount of liquid, so that the pressure in the vessels will be decreased and they, instead of throwing out liquid will take it up, there will be less danger of peritoneal effusion. In the applications of the dressings, where we have reason to expect peritoneal effusion, if we apply pressure we will find the danger of effusion is lessened. Another important thing is the care of the drainage-tube, so that the secretions are not allowed to decompose in the peritoneal cavity. By the application around the drainage-tube of the rubber dam, a piece of rubber such as is used by the dentists, making a complete covering over the dressings, we can wash out the cavity without soiling them at all. The drainage-tube is objectionable where it is unnecessary, for the reason that it lessens the strength of the union in the wound. It is also for the reason that it increases the difficulty of keeping the cavity pure and sweet. There are cases, I think, in which vaginal drainage is preferable to the drainage from above.

Dr. H. O. MARCY, of Boston: There are two or three points in which I shall draw exceptions in the matter of detail to the gentleman who read the first paper. We certainly all understand that we want to get rid of deleterious, effete, poisonous material. The first question the operator places before himself is, that he does it by operative measures. If he is sure he does it, it is a gratuity to add the danger of the introduction of a tube which itself may carry in infection. If it is removed, I am sure he would agree with me that we have nothing to drain, because we have a healthy non-infective cavity. The question comes, Can we do this? If we are in doubt, Can drainage accomplish that which you desire? Unfortunately, we all have to answer that many times it signally fails when we have trusted to it. If we had an infectious tube, we would destroy the point of infection before we closed the wound. There is nothing better than to be certain that you follow back the infection to its very centre. If you have a doubt about the aseptic properties of the cavity, wash it freely with aseptic water. If you have not removed this the next question you ask is, Does the drainage-tube make your patient safer? The drainage-tube often fails. When the drainage-tube fails, then the only safety to your patient is reopening the cavity. I believe that, if we have to use drainage, we should drain in the direction of gravity and not against it; that is what drainage means if we understand it. I am strongly inclined to think favorably of vaginal drainage. I have designed a drainage-tube which I will be glad to present—two tubes lying in conjunction, with a diaphragm; with it you wash in either way, which I believe is of advantage.

Dr. ALBERT VANDER VEER, of Albany: I scarcely think there will be presented to us any subject of more importance than this of drainage in the pelvic cavity. It is with pleasure I refer to one man in this country, one working in the direction of drainage in pelvic abscess. Had he lived he would undoubtedly have carried the

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subject much further along and nearer to perfection than has been done since his death. I refer to the late Dr. E. R. Peaslee. At one time his percentage of recoveries was greater than any other man's. He excelled Sir Spencer Wells in his percentage of recoveries. His theory was to drain in the direction that it is natural for the fluid to flow. In introducing the drainage-tube at the lower end of the abdominal wound, I believe it is well to put in the suture in such a way that it can be tightened as soon as the tube is removed. I can only call to mind two cases in seventy operations where I had hernia occurring. One was because the patient got up too soon. In closing up the wound, bring peritoneum in connection with peritoneum, fascia with fascia, skin with skin. They must be brought together carefully. We must select, according to the cases, the form of drainage.

Dr. PRICE, in concluding, said: I meant simply to discuss actual disease. I was not dealing with given cases. I have studied most carefully the works of Dr. Martin, Tait and others. When I consider the mortality of twelve in seventy-two for pelvic surgery, I must say that I do think Dr. Martin needs a little further experience in pelvic drainage. If you refer to Bantock and compare his mortality record, I think you will consider that it is wise to practice the drainage of Bantock, of Tait, and of Keith, and not that of Martin.

In regard to hernia, you can pick them out from a class of operators that make long incisions. An incision that is long enough to admit two fingers is quite sufficient. You can do anything in the pelvis with two fingers that you can do with the whole hand. The capillary drain I do not look upon as of very great importance. The frequency of cleaning the tube is of paramount importance. You cannot get along without a nurse with special training. A word with regard to the aspirator. I used it a few years ago; I have no need for it now. It is a very easy matter to keep a tube clean, sweet, and dry. I would call attention to eighty-four cases done in the alleys and courts, without carbolic acid or bichloride of mercury, with one death in eighty-four. The nurses were all trained to clean those tubes. I have had no experience with vaginal drainage; the other has served me well. The tube is a little sentinel to show when hæmorrhage occurs.

AFTERNOON SESSION.

Dr. WILLIAM H. MEYERS, of Fort Wayne, presented a paper on the "Treatment of Suppurative Peritonitis," in which he asserted that he knew of no reason why the same general principles should not apply to the largest serous sac in the body, where life is in danger from the irritant nature of its inflammatory contents, as holds good when pus has formed in the brain, in the pleural cavities, joints, or cellular tissue; namely, that all these conditions are amenable to surgical interference at the earliest possible moment after we have arrived at an exact diagnosis. He distinctly emphasized that he did not believe that peritonitis was ever idiopathic or spontaneous in its origin; nor that the peritoneum was ever the seat of independent inflammation, but that it was peculiarly liable to inflammation of a secondary character, the irritant proceeding from without, as in wounds, or from one of the organs lying underneath the membrane; or from injuries to the abdominal parieties, rupture of hydatid, ovarian, or other cysts, the bursting of an abscess, perforation from the diseases of the hollow viscera; these being the most common causes. Regarding ovariotomy as the parent of peritoneal surgery, he presented a résumé of a few cases in support of the idea advanced by Mr. Barker, where ovariotomy was performed during the progress of acute peritonitis, and quoted Mr. Wiltshire as saying that he was able to show, many years ago, that the presence of peritonitis is not always a bar to operations. On the contrary, it may be the chief indication of the necessity for operation, being itself due to

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acute cystic changes, and subsiding only on their removal. Accepting this principle, he believed that attempts at radical cure might justifiably be made, in proper cases, even in the presence of peritonitis. Referring to treatment by the trocar and aspirator, he quoted from a letter from Professor Thomas Anandale, which is believed to be an account of the first authenticated case where the trocar and washing out of the abdominal cavity was resorted to as a curative measure in suppurative peritonitis.

Dr. E. E. MONTGOMERY, of Philadelphia, read a paper on "Larapatomy in Peritonitis," in which he said: The dread of disturbing the peritoneal cavity has been so great as to well justify the assertion of Wagner that he and his contemporaries had been nutured in the fear of the Lord and the peritoneum. Peritonitis varies in its phenomena according to the condition producing it. It is recognized that the disease, in the idiopathic form, can arise from exposure to cold and dampness, in which the exudation is limited and likely to be serous. In other forms, exudation is more likely to become purulent, or there is an early secretion of pus. The pus may be free, or become encysted.

The largest collections are more likely to occur in the acute disease, and especially in the puerperal and metastatic forms. According to Bamberger, the exudation, in its beginning, is fibrinous, but it is evident that there is a primary pus formation, as the cases quoted by Abercrombie and Kaiser show where pus was found after thirty-six to forty-eight hours of inflammation. The removal of pus is as imperatively indicated as when it occurs in pleural or articular cavities.

The presence of pus is indicated by fluctuation, dull percussion, attacks of chills, hectic, cessation of spontaneous pain, sensitiveness upon contact and movement. The diagnosis may be confirmed by puncture with a hypodermic or small aspirator needle. Pain is not always present in peritonitis, though pus may be present in large quantities. Non-purulent effusion may be removed by puncture, but suppuration positively indicates laparotomy, as it allows of thorough evacuation of the pus, complete cleansing of the abdominal cavity, separation of adhesions, the removal of exudation, and perfect drainage. It also permits of thorough examination, and may enable us to discover and remove the cause of the inflammation.

In perforative peritonitis, the operation should be done in all cases in which collapse has not already taken place, though the result will be more favorable in the cases of traumatic origin. In these, the patient is usually healthy, tissues of the viscus are in good condition, and sutures are readily borne, should resection be required.

The class of cases demanding early attention are those occurring about the region of the cæcum. These cases arise generally from perforation of the appendix. It has been stated that 34 per cent. die within three days. In severe cases, laparatomy should be performed at once; and when gangrenous or perforated, the appendix should be amputated and the stump sutured. Lateral incision is preferable to median.

In no form of peritonitis has laparatomy proven more valuable than in the tubercular. Its value was discovered by accident, the operation being done under mistaken diagnosis. The favorable result is attributed to the removal of the serum which serves as culture-fluid for the multiplication of the bacilli.

Incision, in these cases, is preferable to puncture, as ascites does not recur after the former, while it rapidly accumulates after the latter.

In conclusion, peritonitis should be regarded as a positive indication rather than a contra-indication for operation.

Death, in the cases of which we have spoken, is certain; we have seen that the operation may save the patient. Why hes-

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itate to give the latter some chance of recovery?

Dr. HENRY O. MARCY: I consider it a privilege to rise and express my thanks to Dr. Montgomery. It is now nearly two years since I opened the abdomen in one case for exploration, because of a considerable thickened mass post uterine. The patient had been six months under observation and gradually became worse. The diagnosis had not by any means been certain. I do not suppose it had occurred to any of us that she had tuberculosis, but the exploration showed that the whole peritoneum was studded with those little masses which are so familiar to you all. There was in this instance no especial amount of serum. The abdominal cavity was somewhat carefully washed out with a sublimate solution. Before closing the cavity, I cut off a little portion and submitted it to Dr. Nelson, who made not only a careful microscopic study, but cultivated the bacilli by artificial process, so that there was no doubt about the condition. But, strange to me and to you, the patient from that moment began to improve and is now comparatively well.

Dr. CLARKE: Dr. Marcy invited me to see a case in which exploratory incision was done very late. Had it been done earlier I think it would have been successful. I have had an opportunity of seeing a good many such cases since, and I hope, and have encouragement to believe, that it is a feasible operation. Not long since, I saw a young girl who had evidence of phthisis and bacilli of the intestine, who, after a very small exploratory incision and draining off all the serum, seemed to get well in a short time. There was considerable serum in the case.

Dr. RICKETTS, of Cincinnati: The discussion of the treatment of peritonitis by abdominal section has not taken the stand here that I hoped for. It is a very important subject, and I feel that the death-rate of peritonitis is going to be greatly lessened in the next few years by abdominal section. The trouble in these cases is to have the general practitioner understand the gravity of these cases early enough. It is not always the abdominal surgeon who sees the case in the beginning. Many times a bad result is counted against the surgeon, not for any failure on his part, but by failure to recognize the case at the proper time. I feel that it is the duty of every abdominal surgeon to do what he can to get the general practitioner to understand when to call assistance in these cases. I think it is our duty to give them to understand the importance of early interference in these cases.

Dr. THOMAS OPIE, of Baltimore: A remark has brought to my remembrance a case—a single one in my experience—in which I was called in by two physicians; I think on the fourth day after labor. The patient was then in a very bad condition, in a very critical state. I asked immediately if there was not some traumatic origin of the difficulty. They insisted that, so far as they were able to judge, there was none. I insisted on a digital examination, and found there was a rent in the right side of the cervix, in which, by some very remarkable accident—possibly one of the blades of the forceps was not introduced into the os—the uterus was torn very severely. Four fingers of my hand would go into a deep rent. I said to the gentlemen that I thought she was almost moribund, but that it was worth while to try something; it was a certainty that death would ensue, but something was left and that was laparatomy. Appreciating the gravity of the situation, it was insisted by the friends that we should give this one chance. I opened the abdominal cavity and found a large quantity of serum and many adhesions. The patient died ten or twelve hours after the operation. I mention the case because it was one in which I think it was right to give her the one chance out of a hundred.

"The Relation of the Abdominal Surgeon to the Obstetrician and Gynæcolo-

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gist," was the subject of a paper by Dr. A. VANDER VEER, of Albany. He said:

Of those who remember the crusade which was early made against ovariotomy, which was but the beginning of abdominal surgery, and who cherish the belief that the latter is not yet a distinct part of general surgery, the question is asked, "Why is it that special works are being published on abdominal surgery alone, and meeting with ready acceptance by the profession?" Abdominal surgery may be said now to be a part of the specialties of obstetrics and gynæcology. Has not the work of such men as the late Professors S. D. Gross, Tait, Parkes, Sands, Weir, Senn, Greig, Smith, Bull, and others now living, demonstrated the fact that abdominal surgery has become a specialty? If we inquire into the manner of its development, we find that it has been the outgrowth of work done by the general practitioner. The elder Gross once stated that his experience and observation had taught him that they made the best specialists who, having engaged for a number of years in general practice, finally confined themselves to that special department for which their studies, inclinations, and clinical observations and experiences had best fitted them. These words apply with peculiar reference and force to him who attends to practice as an abdominal surgeon. The operation for removal of a simple uncomplicated ovarian cyst is probably the easiest operation that occurs in all the range of the major operations in surgery; but when we come to the operation, embarrassed as it may be by all the complications now known to us, it becomes one of the most difficult of all operations. Notwithstanding all that has been done within a short time by obstetricians, gynæcologists, or abdominal surgeons, to advance abdominal surgery, we are yet at the halfway house on the road leading to complete success, for not yet is made clear the best manner of operating, the best place for the operation, or the best way of dealing with all the various complications. Our entire profession must yet be taught much that pertains to abdominal surgery, and it must to a great extent be done by men of creative genius. What we need is not the elaborate presentation of theories, but the offering of practical papers that will give facts, and the accumulated wisdom and experience of honest workers.

Specialism in society work and in journalism should be encouraged by the profession at large. As abdominal surgeons we should move carefully, but at the present time we must be active and on the alert to make use of the constantly increasing material that presents, and from which to draw our practical deductions. In this new society we have formed a combination that illustrates well that trite but true saying that in union there is strength. The work of the obstetrician is the most arduous, important, and responsible of any part of our profession. The obstetrician and abdominal surgeon should work in perfect harmony. The latter bears to the former much the same relation that the general surgeon does to the neurologist in his brain surgery. The obstetrician, like the neurologist, will make his diagnosis, but the surgeon will often be called upon to do the operation. The work of the abdominal surgeon will necessarily lead him into the field of gynæcological practice—that is, the major portion, not the minor part, of gynæcology. There are many good gynæcologists who are successful in everything that pertains to their specialty aside from doing an abdominal section, and this they assign to some one else. I believe it requires years of the hardest study and effort to become a thorough abdominal surgeon; the number must ever be somewhat limited.

Finally, is it not a fact that there is some danger that abdominal section may be carried too far if made too much of a specialty? Have we not in this society the conservative combination?

Dr. S. C. GORDON, of Portland: I hardly know how we can discuss a paper like this except to assent to what has been

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said. The paper has certainly covered the ground. A discussion, in order to be interesting, must take a departure from the subject discussed. Abdominal surgery in my opinion is now taking quite a different turn from what it formerly did. Formerly we believed that everything of this nature must be done in a special hospital, with special accommodations. My own experience justifies me in saying that, while we must take every possible precaution, we must not allow a patient to die because we can not remove her to a special hospital. The question of special hospitals is no longer a sine qua non.

Professor W. H. WATHEN, of Louisville, read a paper on "The Surgical Treatment for Lacerations of the Perineum and the Pelvic Floor." He spoke especially of the surgical treatment of lacerations or injuries of the muscular and aponeurotic structures that form the floor of the pelvis. He said there is probably no other subject in gynæcology about which so much has been written that is of no real value, and that a relatively simple operation had been made to appear so complicated that it is seldom correctly performed.

He said that the muscles and the fascia in the perineum give it strength, and, when they are lacerated, no operation that does not primarily tend to reunite the torn ends is logical, or will be followed by permanently good results. We may have prolapsus of the uterus, with rectocele and cystocele, resulting from subcutaneous rupture of these structures, with no laceration or injury of the mucous membrane or other parts of the perineum. This condition is usually not diagnosticated by the attending physicians, and the woman is subjected to various plans of treatment to hold the parts in position and relieve the annoyance from pressure, weight, etc., all of which give but little relief; nor can she recover, except by an operation to bring together and reunite the torn ends of the muscles and fascia.

Dr. HENRY O. MARCY, of Boston, read a paper upon "The Perineum, its Anatomy, Physiology, and Methods of Restoration after Injury." He reviewed carefully the teachings of the text-books and the views held by various authors whose writings are found scattered through the medical journals. These he supplemented by a series of photographs of dissections of his own work, from which he verified, in large measure, the teachings of Savage. He especially emphasized the importance of a better general knowledge of the anatomy of the pelvic structures, and pointed out where the teachings of many of the text-books are in error in important particulars

SECOND DAY—MORNING SESSION.

Dr. W. W. POTTER, of Buffalo, reported a case of "Double Ovariotomy during Pregnancy; Subsequent Delivery at Term."

Dr. VANDER VEER said: Dr. Potter has presented just that kind and class of cases we ought to have given us. This is an exceedingly rare case. I have looked up the subject somewhat, and find ninety-six cases reported where the operation has been done during pregnancy—not *double* ovariotomy. It is an operation perfectly justifiable. The condition of pregnancy does not seem to interfere very much with abdominal operations. The case he referred to I operated on about three months ago. I had a letter from the physician in charge saying that she is progressing well, but I do not care to have her case go on record yet.

Dr. E. E. MONTGOMERY: I was very much interested in this case of Dr. Potter's. Two years ago I read a paper on Ovariotomy during Pregnancy. I was able to find a record of sixty cases, and showed that pregnancy had very little influence upon the morality of the operation. In all those, there was not one in which the operation was done upon both ovaries. In the report of Dr. Mundé, I think, it was claimed that a woman was not likely to go through gestation with both ovaries removed. This paper of Dr. Potter shows

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that this belief is erroneous. I had thought, until Dr. Potter made this report, that my case was the first.

Dr. MAXWELL, of Keokuk: There is one other point that is interesting—that is, that the patient operated upon nursed her child after gestation had been completed; another fact, that lactation is not a substitute for menstruation.

Dr. BYRON STANTON, of Cincinnati, read a paper on the subject of "Induced Premature Labor." He referred to the arguments which have been urged against this procedure, based upon the ground of its mortality and usefulness—arguments that would apply with equal force against all obstetric operations. He thought that, like the obstetric forceps and version, it would tend much to do away with craniotomy and Cæsarean section. He thought that the arguments that the mother is exposed to some risks that she does not encounter at term, such as imperfect development of the uterus, incompleteness of the changes which nature effects in the maternal passages during pregnancy, the frequently delayed detachment of the placenta, more frequent malpresentations, etc., were more than met by the advantages gained by the smaller size of the child, and more yielding and compressible head, and consequently shorter and safer delivery.

He also referred to the arguments against induction of labor, on account of the great infant mortality, quoting some recent writers as holding that such intervention is so dangerous that the operation should give place to Cæsarean section—an operation that has rapidly reduced its mortality. He thought the conclusion not justified by statistics.

The points involved in determining the question as to the resort to the operation are:

1. Whether the case is one in which delivery at term will involve the death of the infant, and subject the mother to much danger and suffering, and yet permit delivery at seven or eight months;

2. Whether the conditions are such that the life of the mother will be imperiled by continuance of pregnancy to full period of gestation, by hæmorrhage, or some intercurrent disease, or by aggravation of some chronic ailment which can be averted or removed by earlier delivery; and,

3. Whether there is a history of infant fatality in several successive pregnancies at some regular time after the age of viability.

He considered the methods of inducing labor, of which there are many.

Medicines acting through the general system were condemned. All oxytocics are unsafe for inducing labor, so also are those methods that act by reflex irritation. Some method acting directly on the uterus is to be preferred, and only those are to be thought of that respect the integrity of the membranes. Electricity in its various forms has proved disappointing. The hopes that were at one time entertained have not been borne out by experience.

Kiwisch's, Kluge's, Cohen's, Hamilton's, Lehman's, Schiele's, Krause's, and other methods were described, preference being expressed for Krause's method—the introduction and retention of a flexible bougie between the membranes and uterine walls until uterine action is excited.

In placenta previa he would use a tampon in the vagina, or a Barnes dilator in the cervix, until sufficient dilatation is effected to permit version.

All methods that bring on uterine action by evacuation of the liquor amnii are to be avoided.

After labor, the child demands especial attention. It must be kept continuously warm by artificial heat. The bath usually given to the new-born *must be omitted.* Early feeding must be resorted to.

Dr. THOMAS OPIE: I think the attention of physicians ought to be called to the importance of the principle of taking advantage of that period of intra-uterine life in which the sutures are yet wide and the bones not well developed, and in which

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we can have this very desirable condition of molding as the head is passing through the canal. It is remarkable the ingenuity with which nature molds the descending head to conform to the channel through which it must pass, but this is a process which requires an amount of time proportionate to the difficulties to be overcome. If the contraction is great, the time must be lengthened. If the contraction is too great, then delivery must be impossible if the patient has gone on to full term. I wish to speak of great importance of taking advantage of the undeveloped condition of the head of the child. We will find the shape of the head indicating the direction of the force, and, so distinctly pointing out what has been the difficulty and cause of delay. We have to deal with two distinct classes of cases. In one class, after inducing labor, we can wait for Nature to carry it through, but, in cases of eclampsia and placenta previa, delivery must be accomplished at once. Still we should take advantage of the condition of the head, for, with the forceps upon it, we find it still qualified to adapt itself to the canal, but in a better way than at full term. In cases of eclampsia, I think many lives are lost on account of delay. It has not been my experience that the operation of dilating the uterus is either difficult or dangerous. The introduction of hard-rubber dilators will furnish the beginnings. It will soon be found that, after introducing one after the other, the contractions begin, whereas, with the bougie, it might be delayed two or three days. I merely introduce these as a forerunner of Molesworth's or Barnes' dilator, until I can get in two fingers; and then I am able to introduce Taylor's narrow-blade forceps, and with these dilate the os sufficiently to apply the Tarnier forceps.

I would emphasize what has been said with reference to the question of ergot. There is one point about ergot which should be thoroughly established in the minds of the whole profession—that there is great danger to the child from its tonic action, and, as far as the mother is concerned, we start a force that we can not control.

Dr. A. L. SMITH, of Montreal: I wish to urge the induction of premature labor in bad cases of vomiting in pregnancy. I have a record of eighty cases of death in this comparatively simple condition. I know of one large family of beautiful girls in Montreal, every one of whom was born at seven months.

In a paper entitled, "Is the Frequent Use of Forceps Abusive?" Dr. THOMAS OPIE, of Baltimore, said: There is a remarkable unanimity of opinion in the teaching of recent text-books, medical journals, and medical societies on this subject.

They favor the more frequent use of forceps, and condemn the so-called expectant management of labor. The axiom "meddlesome midwifery" has beaten a retreat before the clamor for the forceps.

The name of forceps points to its most striking characteristic, its prehensile power. Three distinct eras may be traced in this branch of medicine, having their pivotal influence in the forceps.

1. The introduction of the original forceps in 1700; 2, the important invention by Levret of the pelvic curve in 1747; and 3, when in our own times, 1877, Tarnier invented the traction-rod attachments to the forceps.

Baudelocque arranged methodically the pelvic positions and presentations in 1791. Prior to that time the sovereign powers of the forceps were greatly abused. Their introduction was a matter of haphazard and convenience. Even in the days of Ramsbotham there was a bitter controversy as to which was preferable, forceps or craniotomy.

A recent writer says "the forceps is simple in construction, easy of application, wonderful in power."

The successive stages of their development have, on the contrary, made them far less simple in construction; they have a

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wider range of application and wonderful powers for life-destroying as well as life-saving.

All surgical operations are dangerous; it is equally true that elements of danger lurk about all cases of artificial labor.

To substitute traction for contraction; to introduce and use instruments in the genital tract; indeed, to substitute art for nature's peculiar and inimitable methods, is always dangerous.

The most unanswerable argument against frequent use of forceps comes from the gynæcologists. Good surgeons are relatively few, and delicate and dangerous operations in that branch are relegated to specialists among them; but most practitioners think themselves able to cope with any forceps case. If skill in the use of forceps did not exist prior to Baudelocque's classification, how can we accord this virtue to operators with the forceps in these days, who are ignorant of the fundamental principles and admirable system upon which the present science of obstetrics rests?

The opportunities for the student of obstetrics are meagre; and granting he is thorough in the theory of this department, he forgets it before he is intrusted with a practice. No wonder if he makes a medium-rate obstetrician, and sneers at the mechanism of labor.

To determine between the high forceps operation and version, to diagnosticate or rectify position above or at the brim, to apply the forceps accurately and conduct safely the little passenger through the passageway, are among the great achievements of medical science.

The high forceps operation is a critical one, and the operator should be chosen with as much care as for an ovariotomy.

The low operation is not so simple as to be left to "any tyro."

For practical purposes, it answers to designate all kinds of forceps, in the order of their seniority of invention, as follows: the straight (Chamberlyn), curved (Levret), and traction-rod (Tarnier).

It is high time to turn a deaf ear to the many names of individuals attached to forceps because of various modifications of lock, blades, or handles. They obscure the horizon of the subject; they distract attention and confuse the object, which, like that of the practice of medicine in all its departments, is life-saving, curative.

There is but little need for straight forceps. The traction-rod forceps alone serves our purposes with satisfaction, at and above the superior strait.

The welding and unification of the traction-rod and curved forceps in Tarnier's latest style well-nigh disarms criticism. It is a great achievement; one on which we may congratulate this age.

Think of the struggle, and pity the sufferings of the man, woman, and child as the operator toils away with the straight forceps at the inlet. The pelvic curve added would only qualify, not remedy, the situation.

Still another modification, and science has triumphed. The traction-rods, with relative ease and far less force, pilot the head through the upper narrows, and thence into the safer region of the low operation.

If we could only persuade operators of the salvation of traction-rods covering all the indications for traction at the superior strait; of making traction, during the pains, rythmical, direct, slow; of supplementing, not superseding, nature; of utilizing all the vis-a-tergo and only just enough of his power to bring the combined forces to the normal, and that all above that is abuse.

If we could get them to be careful, to halt, prospect and protect the sphincters of the uterus and vagina, and to beware of rapidly unloading the organ, we would have a reform that would be as life-saving stations all along the passageway.

I am fully convinced of the ability of the forceps to help. I protest that they should not be used regardless of the factors of delay.

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I plead for their judicious use.

As to the indication that the os should always be dilated or dilatable, judgment often goes to protest.

About two years ago, I was in attendance upon a most tedious, nervous, and impatient primipara, in whom the os was only three-quarters dilated; after a boisterous struggle of two nights and two days, slowly, almost imperceptibly, the dilatation increased. The patient's-qualifications for abuse, however, grew more rapidly; I came in for a large share of it. She demanded chloroform and instrumental aid; the husband seconded her claim. The traction-rod forceps was applied; she was delivered in two hours under chloroform. A febrile trouble and tardy convalescence ensued; some months afterward she became the patient of a clever gynæcologist. His operation told the tale of the "blundering obstetrician." I have never had an opportunity since to call the patient to an account.

One of the most important requisites for a good obstetrician is "to know how to wait and do nothing." In the first stage he must wait a long time, especially in primiparæ, before using forceps; indeed, he is not warranted in resorting to it, except the mother or child is in jeopardy.

For the most frequent use of forceps is in the second stage, and we are told "any tyro" can perform this operation. Nature can generally do it better and safer, if not so quickly. Time and patience can not be too much extolled as virtues during the whole of labor.

Let the attendant occupy the position of "watchful expectancy." Remove reflex disturbance, sustain by proper food, guard against fatigue, secure rest, assure and cheer, utilize the simpler methods of assistance; let nature do all she can before we resort to forcible measures. I have lately limited the number of my forceps application by manual pressure, according to the plan advised by Kristeller of Berlin.

This, and other manual helps, are more in accord with nature's laws, and should be made use of. Instead of using forceps to curtail the sufferings of labor, we had better consider the very great efficacy of morphia, chloroform, and chloral.

As an isolated indication, it is doubtful whether pain ever warrants forceps use, nor would such cases necessarily end with less suffering after immediate delivery.

It is a common occurrence for women to demand that the accoucheur shall do something to help the physiological phenomena of labor. Dr. Robert Barnes denounced this as an old and bad practice.

Anæsthesia is the best treatment for cases of excessive nervousness and emotionalism in labor, not the forceps, as has been advised. Chloroform during the pains often makes labor of this sort more normal.

The nervous element is often misleading; it is not always the patient who is most noisy who suffers most, nor is it safe to be influenced by her cries for more chloroform or the forceps.

The loss of time by an accoucheur is not to be accepted as a warrant for resorting to instrumental delivery.

The forceps is a life-saving instrument for both mother and child, whether we are dealing with the first or second stage of labor, provided it is used judiciously and skillfully.

There is much difficulty in obtaining exact statistics as to the frequency with which the forceps is used. The figures vary with the country and with the operator. Ploss' tables show a wide difference in frequency of application in German, Swiss, and Russian maternities. In an aggregate of 33,054 labors, the forceps was applied 1,975 times, or one in thirty applications.

Ploss' tables for England make the least number of applications for any operator, as one in 3,878. The operator with the greatest relative number was one in 7.8. Jacquemier's tables give 20,517 labors

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and ninety-six forceps cases, or one in 214.

These tables embrace a period from 1792 to 1862. Those were the days of the swaddling infancy of obstetric knowledge, when method was just inaugurated by Baudelocque. Still they are useful in the light of history, in setting forth the wide range of opinion as to the frequent use of the forceps in those days.

Galabin says no one would now recommend so sparingly a use of forceps as one in 200. He says that the statistics of St. Thomas' Lying-in Charity appear to show that a forceps rate of one in sixteen to one in eighteen deliveries does not endanger the mothers; but wider statistics are desired.

The Maternity Hospital, Philadelphia, shows the number of forceps applications in 1886 to have been about one in eight.

The Columbia Hospital, Washington, D. C., has had an average of about one in twenty. At the Maryland Maternity Hospital, Baltimore, we have used forceps 142 times in 1,495 deliveries, or one in 9.4.

The number of forceps applications at Vienna Lying-in Asylum during the past year was 2 per cent.

In my private practice, including consultation work, the average has been one in 10.5. I have found by inquiry of many practitioners that their average in private practice ranges from one in four deliveries to one in twenty-five.

It is to be deprecated that there is not a greater tendency to specialism in obstetrics. No man, ignorant of the mechanism of labor, and who does not know the rules for using the forceps, should ever undertake a high forceps operation. That clumsy, untutored, and unskilled hands do harm with the forceps even at the lower strait cannot be denied. As long as this unfitness and want of training for obstetric operations exists, it will be humane to withhold our advocacy of a still more frequent use of forceps.

Nature has been defined as "the good will of God expressed in facts." We should crave her facts and imitate her. We will be adverse to substituting art for nature, so long as man is inferior to his Maker, except we act because of danger to mother or child.

We will not detain you with the enumeration of the many accidents and injuries which befall the mother and child at the hands of the forceps. Suffice it to say, they embrace a large part of every recent work on gynæcology.

We sadly need statistics to settle the wide differences among obstetric operators with the forceps as to the frequency with which they may be used. Our judgment is that the average of one in fifteen or sixteen applications of forceps, as suggested by Dr. Galabin, is a fair one. The pendulum, having properly left the position of too great infrequency, has gone to an unwarranted extreme in point of frequency.

The obstetrician would do well to be found in the good company of the physician in the prevention of disease, the surgeon in his conservatism, and in line with the modern sanitarian.

Dr. JOSEPH PRICE, of Philadelphia: For years I condemned the use of forceps in unqualified language. During my hospital experience I singled out 300 cases of labor, in twenty-five of which forceps had been used in previous labors. In none of the twenty-five cases could I find the slightest indication for the use of forceps. I know that in skilled, trained hands it is a valuable instrument. I am glad the author has advocated the Tarnier forceps, and has called attention to the Taylor narrow-blade forceps. In one case—a very ugly patient—in five successive labors evisceration had been performed. She finally agreed to submit to induced labor, and thereafter three living children were delivered with the traction-rod and Sims' forceps. The Sims forceps have a great advantage in the greater diameter of the blade. I have gone to three series of 100 cases without taking my forceps out of the

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bag. In a discussion on the use and abuse of the forceps in our obstetrical society, one man admitted that he could not afford to attend poor women for five or ten dollars and not use forceps. It was five or six months before he came back to the society, so thoroughly was he rebuked.

Dr. FRANKLIN TOWNSEND, of Albany: It is important to bear in mind that in labor the first stage is governed by the sympathetic nervous system; in the second stage, by the cerebro-spinal system. I do not believe the second stage should be allowed to continue longer than four hours. The exhaustion due to the strain on the cerebro-spinal nervous system is such as to warrant a speedy termination of labor.

Dr. J. H. SCARFF, of Baltimore, reported a case of "Intraperitoneal Hematocele with Suppuration." A saleswoman, aged twenty-five years, was injured by the falling of a box from an upper shelf in a store, striking her upon the left side of the abdomen. Inflammation with subsequent exudation ensued, after the lapse of some months after the injury. During the progress of the case an aspirator needle was inserted, and a pistonful of disintegrated blood secured. About six months afterwards he performed laparatomy and removed a large basinful of suppurating clots. The patient made a speedy and good recovery.

He summarized the points in the case as follows:

1. Pelvic inflammation and exudation, simulating true pelvic tumor, resultant from an injury.

2. Rupture of a blood-vessel in the peritoneal cavity while on duty subsequently in a store, and formation of an intraperitoneal hematocele.

3. Rapid suppuration of blood clots due, probably, to infection by the aspirator needle.

4. The extent of the provisional sac for the retention of pus in the peritoneal cavity is noteworthy.

THIRD DAY—MORNING SESSION.

Dr. THOMAS J. MAXWELL, of Keokuk, presented a careful résumé on the subject of "The Diagnosis and Treatment of Uterine Fibroids," including the pathology and causation of the disease. He dwelt upon the difficulties of diagnosis, and called attention to the liability of its being complicated by co-existing retro-deviations of the womb. He gave his own experience narrating his cases, and pronounced in favor of ergot, electricity, and the knife, as affording the rational methods of management of uterine fibroids.

HAMPTON E. HILL, of Saco, reported "An Unusual Case of Subserous Uterine Fibroid—Operation." The tumor measured in length sixteen inches; in width, fifteen inches; in thickness, ten and one-half inches. The weight was forty-seven pounds.

Dr. EDWARD J. ILL, of Newark, read a paper on "Desmoid (Fibroid) Tumors of the Abdominal Walls." He cited two cases, in one of which one hundred square centimetres of peritoneum were removed. In both cases the peritoneal cavity was opened. One case was operated upon by the excellent method of Sänger. Both cases recovered. The writer then spoke at length of the anatomy, pathology, etiology, symptomatology, diagnosis, and treatment of these rare forms of tumors. He drew especial attention to the symptoms produced by the contraction of the abdominal muscles on the tumors. He dwelt at length upon the differential diagnosis between this form of tumor and enlarged spleen, enlarged kidney, subcutaneous or subperitoneal tumors, uterine fibroids, solid tumors of the ovary and round ligament, adherent displaced kidneys, cyst of the urachus, dermoids of the abdominal walls, etc.

The prognosis of true desmoid is good. He has collected twelve cases of this form of tumor occurring in the United States. Ten of these occurred in females between

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the ages of twenty-three and forty-one years. In five of these cases, the origin of the tumor was given as the fascia transversalis. In six cases, the tumor was so closely adherent to the peritoneum that it became necessary to open the peritoneal cavity in removing them. In two of these, excision of a large portion of the peritoneum became a necessity.

Dr. CHARLES A. L. REED, of Cincinnati, presented a paper on "Fibroid Tumors of the Abdominal Wall." He noted the dearth of American and English literature on tumors of this character. After accumulating his data, however, it became apparent that, to dispose of the entire topic, it would be necessary to discuss (*a*) fibromata, (*b*) lipomata, (*c*) myxo-lipomata, (*d*) cysto-carcinomata, (*e*) neuromata, and (*f*) hydatid cysts. A discussion of these subtopics, however cursory, would result in the production of an essay too voluminous for the occasion. As a consequence, and in consideration of the fact that his own observations had been limited to five cases of tumor of the abdominal wall, all of them fibroids, he determined it expedient to restrict his paper to a discussion of that variety. He considered the subject under the following heads: History, etiology, pathological anatomy, symptoms, development, influence of pregnancy on the nutrition of these growths, duration, prognosis, diagnosis, and treatment. He presented the subject of treatment under three heads —exploratory incision, total extirpation, and electrolosis—reporting his five cases in detail. The conclusions to which he had been forced by a study of fibroids of the abdominal wall, and by his experience in their treatment, were as follows: *First*, fibroids of the abdominal wall, however small, benign or indolent, are liable to take on active growth; *second*, when small, their anatomical relations are unimportant and their extirpation can be accomplished without serious risk to the patient, and should be advised; *third*, when permitted to grow large, their anatomical relations become very important, and their extirpation can be accomplished but with hazard to the patient; *fourth*, when in cases of large tumor, extirpation should be undertaken only where the exploratory incision demonstrated its feasibility; *fifth*, there should be no hesitancy in abandoning an operation when exploratory incision has shown it to be dangerous, because the primary incision may be of benefit to the tumor; *sixth*, in cases of manifestly deep-seated tumors with extensive peritoneal attachment, electro-puncture should be tried before extirpation is undertaken.

Professor GEORGE H. ROHÉ, of Baltimore, read a paper on "Diseases of the Skin, Associated with Sexual Disorders in the Female."

Dr. FRANKLIN TOWNSEND, Albany, presented the subject of

EXTRA-UTERINE PREGNANCY: ITS PATHOLOGY.

Much of interest has been already published upon the subject of extra-uterine pregnancy, both of a theoretical, as well as of a practical, nature, but reference to results from broad studies in comparative anatomy, is but scanty. In tracing out pathological conditions, we should, of necessity, refer to histology and physiology, for without these scientific aids to our study, we lose sight of the finer shades of beginning morbid processes from absolutely normal ones. We should begin our study of the pathology of ectopic gestation by comprehending the physiological functions of the organs most intimately involved. The pathological processes following may then, I think, be more distinctly and definitely traced. Most authorities are agreed that the functions of the Fallopian tubes are, first, to transmit the ovum from the ovary to the uterus, and, second, to permit the passage of the spermatozoa from the uterus in the direction of the ovary. There are a few, and the best of authorities, who differ from this view.

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Ovum, he said: The seat of contact between ovum and spermatozoon has not yet been determined with absolute certainty. Many of the best authorities differ in their conclusions upon this subject. Coste's observations seem to prove that fecundation is almost always effected, either upon the ovary, or in the part of the tube nearest the fimbriated extremity, inasmuch as he maintains that the ovule spoils very quickly when it enters the tube without previous fecundation. Regarding the functions of the tube and ovaries, Mr. Tait has proven, conclusively, that ovulation can and does take place before, during, and even after, menstruation ceases; also, that the changes in the ovary at puberty are simply vascular, and that those in the tubes at this period are vascular, muscular, and epithelial, and that the change of greatest importance is in the functional movement of those accessory organs. Ovulation, then, and menstruation are necessarily co-incident. If, then, ovulation continues intermenstrually when the tubes are quiescent, what becomes of the ovum when the ovisac ruptures? Mr. Tait says: "I believe that the ovum falls into and perishes in the peritoneal cavity in by far the greater number of cases, and that the passage of it into the uterus occurs only in a small minority of the ova produced."

Accepting, then, the views of the majority of the authorities, that fecundation usually takes place either in the tubes, or on the surface of the ovary, or even in the Graafian follicle, or possibly, as has been intimated by Parry, in the peritoneal cavity, and granting the admirable stand taken by Tait, it seems that, *first*, fecundation of the ovum takes place more frequently than is supposed. *Second*, that this being the fact, many sterile women, that is objectively sterile, who never complain of pain or ache, who ovulate and menstruate with greatest nicety and regularity, and whose general health is perfect, may frequently have fecundated ova, which, like non-fecundated ova, may drop into the peritoneal cavity and perish, because the soil there is unpropitious for their development. *Third*, that occasionally, but rarely, this same peritoneal soil, if permitted to use such a term, does present a favorable site for the development of the fecundated ovum, and what is called "primary abdominal pregnancy" results. *Fourth*, this propitious site may be due to the old peritoneal inflammatory troubles, which may be so slight, indeed, as to have never given rise to suspicion of their existence. Such nesting spots in the peritoneum for the development of the young fecundated ovum, though occurring not so frequently as those inflammatory changes in the tubes, causing desquamation of the ciliated epithelium, and thereby tubal pregnancy, as Mr. Tait so ably advocates, are, nevertheless, a factor of causation of the so-called "primary abdominal pregnancy."

Ovarian Pregnancy.—So long ago as the latter part of the seventeenth century, St. Maurice demonstrated a case of ovarian pregnancy. A number of cases of this very rare condition are now on record. Rupture of the sac takes place early, though when the sac walls are reinforced by inflammatory adhesions to the peritoneal coverings of adjacent viscera, gestation at full term may be reached.

Abdominal Pregnancy.—As has been shown, fecundated ova frequently drop into the abdominal cavity and perish. Occasionally it happens that their growth may continue for an indefinite period. The pathological changes occurring in this form of primary abdominal pregnancy must be distinguished from those that take place in what is termed "secondary." In the one instance we have so minute, soft, fragile, and delicate a corpuscle deposited in the peritoneal cavity that one could not well imagine any grave inflammatory results accruing from its immediate presence. This being the case, then, the contiguous abdominal organs will not be injured by its ulterior development. On the other hand, in the secondary form of intra-peri-

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toneal pregnancy, we have a voluminous product of conception suddenly thrust upon the peritoeum, accompanied by large quantities of blood. Here the ovum acts the part of a foreign body, soon determining an acute inflammatory process about it, which possibly may form a cyst-wall, made up almost wholly of plastic lymph, which completely isolates it from the rest of the peritoneal cavity. If the fœtal cyst ruptures, and the contents escape from the amniotic cavity into the midst of the intestinal mass, a renewal of the inflammation occurs, and the cyst just described forms around it. As a rule, the fœtus perishes at or soon after the time of rupture. With the death of the child, it may be converted into a lithopedion; or, through the blood supply of the connective tissue, it may be preserved for years in its soft integrity.

In all forms of ectopic gestation, the connection between the ovum and the abnormal surface upon which it is engrafted is established by a vital adhesion between the chorionic villi and the tissues with which they come in contact.

The Uterus in Ectopic Gestation.—From researches made by Clark, Oldham, Virchow, and others, it would seem fair to conclude that the uterus is enlarged, even in the early stages of ectopic gestation. A decidua forms in its cavity, which is usually expelled during the early stages of gestation en masse, with pain and symptoms of abortion, or it may be discharged in shreds and pieces without symptoms.

EXTRA-UTERINE PREGNANCY: ITS DIAGNOSIS.

Dr. JOSEPH PRICE, of Philadelphia: The literature of extra-uterine pregnancy is scattered through a vast number of periodicals, and consists for the most part of descriptions of cases occurring in the practice of the writers. The most valuable works are those of Mr. Lawson Tait and Dr. John S. Parry. Mr. Tait is undoubtedly correct in his proposition that all extra-uterine pregnancies are primarily tubal, and that all the so-called varieties depend upon the location of the ovum in the tube and the location of the point of rupture of the tube. The subject may be divided into three classes—*first*, extra-uterine pregnancy before the rupture of the tube; *second*, at the time of rupture of the tube; and *third*, after the rupture of the tube. Rupture of the tube is not synonymous with rupture of the fœtal sac, though they generally occur at the same time. The diagnosis of extra-uterine pregnancy before the rupture of the tube is rarely made, and when it is made is of necessity not positive, because the same set of symptoms may arise from a number of pathological conditions. The symptoms they present are as follows: First, partial or complete cessation of menstruation for one or more periods, generally accompanied by other rational symptoms of pregnancy. Second, pain which is peculiar, being generalty severe, paroxysmal, and long-continued; a sickening pelvic pain which is neither cramp-like nor colicky. These pains, probably caused by the distention of the tube, are like to subside for a time, only to return. Third, the appearance of uterine hæmorrhage, which is again peculiar in that it is usually irregular both as to time and quantity; generally lighter in color than the normal discharge and containing shreds of tissue, which are portions of the decidua vera. The general condition of the vagina and cervix may or may not correspond to normal pregnancy. The uterus is generally enlarged and pushed out of place by a tender or exceedingly painful cystic mass, occupying the position of one or the other of the tubes, and freely movable. A differential diagnosis is extremely uncertain. Care must be taken not to hastily exclude pregnancy, because of the apparent return of the catamenia, nor to conclude that miscarriage has taken place on account of the presence of tissue in the discharge. When the fœtus and placenta die before the rupture of the tube, the difficulty of

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diagnosis is practically insurmountable. These symptoms continue as the pregnancy advances. The tumor, as it increases in size, causes additional symptoms by pressure on the bladder and rectum. Rupture takes place almost always between the eighth and fourteenth week of pregnancy; in a majority of cases before the twelfth week. Now the symptoms vary somewhat, according to point of rupture in the tube, whether into the peritoneal cavity or below it.

EXTRA-UTERINE PREGNANCY: ITS TREATMENT.

Dr. E. E. MONTGOMERY, of Philadelphia, said, that when asked to take part, he chose the subject of the surgical treatment. While his subsequent study had not induced him to depreciate the value of surgery, it had led him to appreciate more highly than he had before done the possibilities of treatment by electricity.

Treatment must depend upon the form with which we are confronted.

Electricity affords an agent which can be relied upon for the destruction of fœtal life. Its efficacy is questioned, but we cannot accept the dicta of men who are ignorant of the manner in which it is used, or of those who condemn it without a trial. An agent which is capable of destroying the life of mice and insects by passing a current through a vessel of water in which they are placed, should be effective in destroying life when brought in close contact with the fœtal envelope through vagina or rectum, as may be most convenient. Its method of action is not electrolytic; the proper method of use is not by puncture. Those doubting its efficacy, question the diagnosis; but it is improbable that all of the cases quoted are cases of mistaken diagnosis. An agent that will dispel conditions affording the subjective and objective symptoms of ectopic gestation is worthy of further consideration.

In conclusion, he recommended the following plans of procedure:

1. In every form of ectopic gestation, prior to the fourth month, the destruction of life by electricity (Faradic current).

2. Between the fourth and sixth months, destruction of life by electricity, and, some weeks later, laparatomy.

3. In rupture, immediate laparatomy, with removal of sac, contents, and the effused blood.

4. In cases that have passed the sixth month, wait until viability is well established, and perform laparatomy, observing every precaution that separation of the placenta does not occur, close the sac above, and drain through the vagina.

5. In case of death of fœtus, it should be removed by laparatomy a few weeks later.

6. Where the fœtus has become macerated and abcess has formed, its sinus should be enlarged and the fœtal residue removed.

Dr. A. VANDER VEER, Albany, said: Much of the literature upon ectopic gestation is very vague. The monograph of Sir Spencer Wells on "Abdominal Tumors" is especially valuable for its clear history of cases, and the concise, yet minute, description of the surgical devices employed.

The abdominal surgeon needs to be perfectly familiar with the points of diagnosis, especially in the early stages.

There is a class of cases in which a diagnosis can be made before rupture, and by the tenth week. Another class gives rise to no symptoms other than those of normal pregnancy before the rupture takes place, as in the thirty-five cases of Tait and the eighteen cases found post-mortem by Formad, of Philadelphia. The first class are such patients as have been under the eye of the gynæcologist, perhaps, for years. He will be conversant with the pelvic conditions and relations. The use of electricity as a fœticidal agent is largely an American method of treatment. The strongest objection to its use seems to be that untoward results follow the operation. The operation for the removal of the product of an ectopic gestation before rupture has taken place is to the surgeon an ideal method.

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There remains no foreign body to be disposed of, and no serious after-effects are to be feared. Veit records seven successful cases with no failures. When the symptoms show that rupture has taken place, there can be no doubt that an immediate abdominal section is the only proper thing to do.

When ectopic gestation goes safely beyond the fourth month, danger of rupture is small.

The general tendency of operators is, then, to await spurious labor. Shall we then try to remove a living child, or wait until the placental circulation has ceased? The tendency of operators is growing more and more toward primary laparatomy. In view of our improved technique in doing the operation, I believe we are justified in urging primary laparatomy. In primary laparatomy, the placenta ought to be removed either by ligation or exsection.

Dr. A. LAPTHORN SMITH, of Montreal, read a paper on "Some Minute but Important Details in the Management of the Continuous Current in Gynæcology."

The following officers were elected for the ensuing year: President, Dr. Wm. H. Taylor, Cincinnati; Vice-Presidents, Dr. E. E. Montgomery, Philadelphia, and Dr. J. Henry Carstens, Detroit; Secretary, Dr. William Warren Potter, Buffalo; Treasurer, Dr. X. O. Werder, Pittsburgh; Executive Council, Dr. Thomas Opie, Baltimore; Dr. Clinton Cushing, San Francisco; Dr. Melancthon Storrs, Hartford, and Dr. Byron Stanton, Cincinnati.

The next meeting will be held in Cincinnati.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The annual meeting was held at St. Louis, September 25, 26, 27, twelve States being represented.

Mayor DAVID R. FRANCIS welcomed the visitors on behalf of the city.

From the standpoint of morality, society, and religion, the doctors of the country went far toward molding the public mind; in the last of these three they were, perhaps, not always sound, and were sometimes too materialistic and unorthodox, but were always sincere.

The Mayor hoped and believed that the visitors would be so well entertained while in the city that they would not only prolong their stay, but would return again, and often. The conclusion of his remarks was a reiteration of his more than hearty welcome to the city on the part of her people.

Professor LOUIS CH. BOISLINIERE, welcomed them on behalf of the medical profession of St. Louis, and said:

In the near future our glorious Western States will cease to be tributary to the East, In the Mississippi Yalley intellectual centres are even now beginning to assert themselves. St. Louis, Chicago, Louisville, Cincinnati are the rising stars in the firmament of the future, and already form a brilliant constellation. They are justly proud of their medical colleges, universities, hospital and clinical facilities, so great, that no student needs go East for instruction. We are also having our great men, and mean to keep them. The great West has heretofore been the nursery of men of the highest eminence, and has given to the East, Gross, Marion Sims, Flint, Sayre, Parvin, Bartholow, Meigs, Emmet, Thomas, and other brilliant luminaries. Our great men of the future will no longer leave us in search of higher honors. The growing West will be a field vast enough for their noblest ambition.

The President, Professor Dudley S. Reynolds, presided.

The first paper was by Professor C. G. Comegys, of Cincinnati, in which "Yellow Fever" was discussed from a clinical standpoint, giving a typical case of the disease, which was followed by general discussion.

In closing the discussion, Professor COMEGYS said: I certainly agree with what has been said on the non-contagious na-

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ture of the disease. It is the clothing that spreads the disease. If a man be taken from a yellow-fever district, stripped of all his own clothing and given a new outfit, there is no danger of catching yellow fever from him.

TUESDAY, SEPTEMBER 25.

This was followed by a discussion of infant-feeding.

Dr. LARRABEE: In connection with this subject, there is another thing which should be considered along with it, the deterioration at the present day of our women on account of over-stimulation so common now. Up to within the last few years the question of infant-feeding was hardly considered, because of the fact that mothers were able to nurse their own children. This is not the case now, and the question of infant-feeding has taken a very important place in medical science. Of course, no food has as yet been found to take the place of the natural supply, and I think I can safely say that none such will be found. As the nearest approach to this natural food is the good old-fashioned family cow, pure milk, fresh from the cow, is the best.

The best of artificial foods are the hydrocarbons. A point in artificial feeding, and an important one, is that in almost every instance of artificially-fed babes, they are overfed. It is exceedingly difficult for the mother or nurse to distinguish between the cry of colic, made by a stomach distended with food, and the cry of hunger; and in the doubt in this case there is no more convenient a stopper than the bottle, and consequently that infant is continually overfed.

It ought to be known that every cry is not necessarily for food. Every infant ought to have water, and not always food, but it ought to be known, also, that the child requires a little salt now and then. The latter ingredient has done more in my hands in facilitating osmosis than all other medicines I have used. Another point, the artificially-fed child is kept always upon one diet. The mother who nurses her babe, gives it such diet as accident or inclination may decide, and the child feels the benefit or injury of such changes.

Dr. E. P. COOK, of Mendota: I have usually been so fortunately situated that when Nature has failed to supply the wants of the human offspring, my general resort has been to that which to my mind comes nearest to the mother's milk, that of the healthy cow. I only will add, that in my own observation those means that keep the milk in as pure and as nearly perfect a condition as possible with as little addition or change, by means of anything to preserve it in good condition—I mean as we ordinarily observe the sterilization of that milk that is intended to be given to the human infant—is one of the important subjects aside from the care in the selection of the healthy cow from which we obtain it. Of course, the milk of the healthy mother is best, but where it is necessary to make a substitute, let it be that of the cow. I don't know much about the various devices for keeping milk in good condition, but I am confident that if it is taken quickly and subjected to heat, placed in conditions where there is little or no chance of atmospheric infection, we have in that case the best thing as substitute for the mother's milk. I have been in the habit of immediately closing milk in fruit-jars, placing it in the ice-box and keeping it there until it is drawn upon. I know but little about those various substitutes of artificial food. I am glad to say I have had very little necessity to become familiar with them.

Dr. MAYFIELD, of St. Louis: I have adopted a method of sterilizing milk that has worked satisfactorily with me for twelve months. I took the suggestion from a milk company. The milk is sealed as soon as taken from the cow; then to sterilize this I have a water-tank. We heat the water for twenty-four hours, keeping it at the boiling point, and this water is first purified before it reaches a receiver, by

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running through charcoal, and from there we draw it directly into the milk, making the preparation half water and half milk, adding sugar as necessary. I have used the various preparations of food as they come from the manufacturer, and a great many of them have given considerable satisfaction, but not as much as the milk prepared as I have stated.

Dr. N. GUHMAN, of St. Louis: It seems to me that the previous speakers have forgotten that the condition of the stomach of the child has a good deal to do with the diseases of the children. If we would make more use of antiseptics with the digestants, it would be better. We have to find out what is especially applicable in each case; it is the same thing with ourselves, we don't digest the same things in the summer that we do in the winter.

Dr. BEARD, of Chicago, read a paper on "Diseases of the Middle Ear."

Dr. DICKINSON, of St. Louis, discussing the same, said: I think that this disease, as a general thing, is neglected, and cited one unfortunate case as an illustration of such neglect. No attention was paid to it until some years afterward. At the time I saw the patient, this physician had deceased. On inquiring, I learned from the mother that at times little white substances had passed, and so probably all of the ossicula had come away. There was total occlusion of the meatus, and hearing was totally destroyed, rendered so by this closure. The other ear was similarly affected, but not to the same extent. Treatment within a short time arrested the process. Dr. Beard made a remark regarding the suppurative conditions of the middle ear: that they do admit of cure but the chance is not always given. A physician told me he had six cases which terminated fatally during the winter; therefore these affections of the middle ear are not trifling in character, and therefore deserve the attention of the general, as well as the special, practitioner.

Dr. D. A. THOMPSON, Indianapolis: In regard to the catarrhal affections, the time we usually look for them and their causes is in early infancy; they then develop this tendency and are subject to the changes in temperature; then is the time for the general practitioner to look after them. Some of these suppurative affections seem not to yield to any treatment.

The PRESIDENT: The presence of discharge from the ear should awaken suspicions that should reject an applicant for life insurance. I knew a man not long since who, in apparently good health, died within two weeks from a perforating abscess into the brain.

Dr. BEARD: I don't question the incurability of some cases, and I agree that some seem not to yield to the treatment I have mentioned, but it has been my experience that they are, as a class, a very satisfactory kind of disease to deal with.

Dr. WM. DICKINSON, of St. Louis, read a paper on "Retinitis Albuminurica," and gave details of a case presenting the characteristic features of this affection.

The presence of this affection simultaneously with the pregnant state was to some extent discussed, and the urgent necessity for immediately inducing premature labor, if it occurs during the seventh month of gestation or earlier, in order to avoid blindness or death from convulsions.

Should it occur during the ninth month recovery of normal vision usually occurs after delivery; if in the eighth month, and the induction of premature delivery is not performed, only one-half of the cases recover; if at an earlier date, blindness or death frequently occurs, the danger of the supervention of these events being proportionate to the time of its invasion prior to the time of normal delivery.

The great practical lesson to be derived is never to disregard or underrate the significance of progressive failure of vision, especially when the cause is obscured.

Dr. BAILEY, of Louisville: I would ask you to widen the aspect of Bright's disease, not as simply a disease of the kidneys;

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the kidneys are not only involved; it is a general systemic disease, and hence this affection of the eye I would be disposed to regard rather as a part of the general disease than as a complication.

Some of these diseases are recognized more quickly in the eye than in the kidney. I believe it is constitutional always, in which there is connective-tisssue hypertrophy, resulting in hypertrophy of the left ventricle. I don't believe that a simple obstruction in the kidney would account for all the vascular changes.

I am inclined to take issue with the management of this disease as it occurs in pregnancy. I would put it on the same basis that I would a threatened convulsion due to the same cause, and I believe we can treat satisfactorily not only the disease, but by increasing the elimination from the kidneys we can save the patient from disastrous results and carry her to full term and delivery. So I would question the positiveness of the assertion that we do not wait a single hour, but remove the offending cause.

Dr. DICKINSON: I have no practical experience in this connection with pregnancy, and consequently I have to take the testimony of others; and authors on this point have been very emphatic in regard to the production of premature labor in such cases.

Professor D. R. BROWER, of Chicago, read a paper on "Exophthalmic Goitre and Its Treatment by Strophanthus."

He invited attention to the more prominent features in the clinical history and diagnosis of the disease, and then suggested its treatment by strophanthus.

The eyes, the thyroid gland, and the circulatory system are usually all changed by the morbific process in this disease. Usually the circulatory disorders are first manifested. These consist of increased frequency of the pulse, palpitation and dilatation of the arteries. The pulse, in a mild case, is about 100, but it may reach a point of much greater frequency. In the early stages the heart sounds are normal, but anæmic murmurs may soon be found, and, later, organic murmurs, that have resulted from the dilatation of the heart. The exophthalmus usually appears soon after the swelling of the thyroid, but occasionally before it, and still more rarely may precede it and the cardiac symptoms. The degree varies from a slight prominence of the eye to such protrusion that no part of the globe is covered by the lids. It is usually bilateral, not always symmetrical. It often appears earlier in one eye than in the other, and the prominence of the one may exceed that of the other. Ophthalmoscopic examination will show pulsation in the arteries of the retina.

Von Graefe first called attention to another useful sign about the eyes—the want of harmony between the movements of the eyeball and the upper lid. If the patient be directed to look downwards it will be found that the upper lid does not follow the movement of the eye, or only abnormally. The temperature of the body is elevated usually from one-half to one degree Fahr. A muscular tremor, sometimes coarse and jerky, like chorea, and sometimes fine and regular, like paralysis agitans, is present in almost every case. It is confined chiefly to the larger muscles. The head, fingers, and toes are usually exempt from this tremor. There are, also, constitutional disturbances. The gastro-intestinal area shows loss of appetite, impaired digestion, nausea, vomiting, and diarrhœa, with marked emaciation. The nutrition of the brain suffers much, as is manifest in insomia, headache, dizziness, weakness of thought and memory, irritability of temper, neuralgia. The milliampere-meter gives valuable information, as first suggested by Dr. Vigorius, by determining the condition of electrical resistance, which, in this disease, is markedly diminished.

Dr. A. A. Eshner believes that the symptoms are due to a disorder, functional in character, in the medulia oblongata, involving the cardio-inhibitory centre, the

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vaso-motor centre, the respiratory centre, and the other important centres located in that part. Careful consideration of the physiological functions of these centres may enable us to work out the pathogenesis of the disease.

Its treatment has been very unsatisfactory. The drugs in ordinary use have had but very little influence upon it, but Professor Brower thinks that in strophanthus we have a remedy that in some cases is of great value. He has administered a tincture of strophanthus in three cases with benefit.

Dr. DICKINSON: In this disease the vaso-motor system has lost its control, and then we have the action of the heart irregular and frequent. The writer speaks of a case in which the pulse reached 116. In a case which I recollect it was so frequent that it could not be counted. Strophanthus was not used. I had to fall back on what my ingenuity could devise. I used digitalis and the galvanic current, by which the pulse was reduced to eighty-two, and at one time to sixty-eight, after a few days.

WEDNESDAY, SEPTEMBER 26.

Dr. C. S. BOND, of Richmond, Indiana, read a paper on "Conditions Which Precede Serious Lesions of the Kidney." He assumed the position that long before organic kidney lesions were to be discovered there were changes in the blood as to quality and physiological elements sufficient to lead the careful practitioner to proper appreciation of the case.

No ailment complained of by patients was too trifling to deserve correct diagnosis, and seemingly slight indispositions, continued for any length of time, were to be regarded with suspicion necessary to procure for them careful inquiry—such as pains in the back and loins, susceptibility to the influences of cold beyond a normal condition, pain or disagreeable feeling in the eyes upon their exposure to light, abnormal sounds of the heart, not pronounced enough to be designated as due to organic disease, and tendencies on the part of the various organs to disturbances of function.

He dwelt upon the circumstance of an increased quantity of urea in the urine, and urged the diagnostician to inquire into this, as many times a diagnosis could be made sufficiently early to abort a commencing Bright's disease or other malady as disastrous in its results.

Dr. LARRABEE: There is no more important subject for the consideration of the profession than this, and I must commend the presentation of Dr. Bond's ideas as he has expressed them. The prevalence of this disease is generally accepted to be on the increase. The fallacy of this belief may be explained by remembrance of the fact that they are better understood and more readily diagnosed now than formerly. It is doubtful whether the patient is in more danger from the disease than from the doctor who makes his diagnosis of the disease or eliminates it with the spirit-lamp and nitric acid. And we ought to do more in the particular line that Dr. Bond has indicated. No man supposes when he unbuttons his vest from distention induced by indigestion, or when he suffers from neuralgic pains, dimness of vision, etc., that he is on the outer borders of Bright's disease. Its frequency may be shown by instancing the fact that out of some 340 examinations of urine in a London hospital, half of the number, about 170, were found to have evidences of distinct lesions of the kidney.

Dr. J. M. MATHEWS, of Louisville, read a paper on "Obscure Rectal Diseases."

The term employed by Professor Goodell, "Hysterical Rectum," is, in my opinion, misleading, and while the importance of the affection cannot be overestimated, I am inclined to think a caption such as, "Some Obscure Affections of the Rectum," is better for the elucidation of the subject than that employed in Professor Goodell's paper, for the reason that it invites investigation. I dare say there is no physician here but has had some patient complain to

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him of some vague symptoms of rectal disease when such diagnosis was not borne out by an examination.

Dr. Goodell says, "In this form of hysteria there are usually present in my experience some one of the protean symptoms of general nerve prostration, such as spineaches and backaches, ovarian uneasiness, wakefulness, and nervousness. But the chief suffering or the most exacting symptom is referred to some portion of the rectal tract, leading the physician to suppose he is dealing with some case of traumatic lesion. The act of defecation then gives great suffering, followed by painful throbbing which may last for hours. Patients thus afflicted so dread the suffering that they school themselves into habits of costiveness, and often become victims to opium eating." But is Dr. Goodell correct when he says that one of these may lead the physician to suppose that he is dealing with some traumatic lesion? To state it more definitely, is not the physician really dealing with a traumatic lesion, and can a cure be effected upon any other hypothesis? Certain it is that if a lesion exists, the disease will not be cured until such lesion is eradicated.

He cited a number of cases to illustrate these conditions, and gave the following as causes of these obscure affections of the rectum.

1. Hysteria (?) neurosis.
2. The reflexes.
3. A lesion or pathological change at seat of trouble.

TREATMENT.

Taking it for granted that a pathological condition is found in the rectum, I shall only refer to those that would likely cause symptoms simulating the nervous rectum. (?) They are, viz.:

1. Fissure.
2. Ulcers.
3. Congestions.
4. Proctitis.
5. Internal fistula.

He then outlined the treatment of the different forms of rectal disease.

Dr. H. H. MUDD, of St. Louis, read a paper on "Contusions and Lacerations of the Kidney."

He gave in detail several cases, in one of which a boy aged five years had suffered a contusion, which, on the fifty-first day after injury, required nephrectomy. The operation was made through a lumbar incision, and the patient made a good recovery.

He called attention to the fact that in these injuries the peritoneum is not generally injured, and that a fluid tumor gradually developed in the lumbar region on the side injured.

A contusion without serious laceration of the kidney, but accompanied by a perinephritic hæmorrhage, might present all the diagnostic symptoms of a rupture. On the other hand, destructive laceration of the kidney-substance is slow in developing characteristic symptoms. Usually there is ample time for investigation of the cases before operative interference is demanded.

Dangerous conditions which may develop during the progress of such cases are shock, septicæmia, cystitis, with extension of inflammation through the bladder to the other kidney, and nephritis of the injured organ. Suppression of urine in both organs may occur during the presence of one or more of these conditions. Destructive unilateral nephritis may develop in the contused organ. Cuts, bullet wounds, and tears of kidney-substance heal quickly. Laceration in pelvis of the kidney or the ureter is much more likely to leave an intractable fistula. Incision, with inspection of the injured organ and drainage were recommended before extirpation. Laceration of the kidney may occur without external evidences of injury.

Dr. WM. TOWNSEND PORTER gave "A Demonstration of the Effect of Cold, Applied to the Abdomen, Upon the Tracheal Circulation." It was made upon four cats, the trachea of each of which had been

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opened with a galvo-cautery knife. First, a warm poultice was applied to the belly of each cat, and on changing that for a cold application the change in circulation in the trachea was shown.

CHICAGO PATHOLOGICAL SOCIETY.

Stated meeting, October 16, President I. N. Danforth, M. D., in the chair.

The session opened with a discussion on Professor Lydston's paper, "Syphiloma of the Tongue," which was read at a previous meeting.

The PRESIDENT said that a section of the specimen showed it to be a mixed sarcoma, with no indications of malignancy.

Dr. WESCOTT asked what Dr. Lydston based his opinion upon in believing that the growth was cancerous.

Dr. COPELAND said that from the general appearances of the growth Dr. Lydston thought it might have degenerated into cancer.

Dr. W. H. HAYMAN asked whether such a growth ever became malignant.

The PRESIDENT replied, "Yes; when it changes its cell type. It then becomes atypical."

Professor A. E. HOADLEY had not heard or read the paper; but the degeneration of such a growth from a benign to a malignant condition, he said, is not regarded as being well proven—that is, assuming that there are embryonal tissue-elements in the make-up of a malignant tumor. It is believed now that there is no such thing as a syphiloma ever becoming a carcinoma, or an epithelioma ever developing flat or spindle-shaped cells without the spindle-shaped cells originally existed as a basis for the development of the tumor. A syphiloma, however, might be an exciting cause for the development of carcinoma, but if it exists without the primitive embryonal cell-structures, it can never degenerate into a malignant tumor. This is yet a question in the minds of the profession.

The committee, composed of Drs. Dion, W. H. Hayman, and J. J. M. Angear, previously appointed to examine the literature on the subject of superfœtation, and to report on Dr. Murdock's case, reported conjointly as follows:

Churchill concludes:

1. That the theory of superfœtation is unnecessary to explain the birth of a mature fœtus and blighted ovum; of a mature and immature fœtus, born together or within a month of each other, or of fœtuses of different colors, as they may reasonably be supposed to be the product of one act of generation, or of two nearly contemporaneous.

2. That in cases of double uterus it is possible for a second conception to take place, and (judging from the subsequent birth of the second child, in the only case on record) at a later period than the first.

3. That in the remaining cases, where one mature child succeeded the birth of another after a considerable interval, we have no proof of a double uterus in any, and positive proof that in one case it was single, and that to the explanation of these cases no theory as yet advanced is adequate; that of superfœtation being opposed by physical difficulties, insurmountable in our present knowledge.

Simpson, Duncan, Tyler Smith, and others, deny that fecundation is prevented by the condition of the uterus in the early months of gestation. Tyler Smith has shown the mucous plug to be different only in quantity and not in kind to that which occupies the cervix in the unimpregnated state, and will not prevent passage of spermatozoa. Neither does any obstacle occur to the passage of a second ovum when the uterus is already occupied by one. Inasmuch as neither of the layers of the decidua in the first month of pregnancy pass over the orifices of the Fallopian tubes or cervical canal, until the third month the ovum with its envelopes is attached to a small portion only of one of

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the parietes of the uterus, leaving every other portion of the decidua vera free for the reception and development of a second ovum. "The infrequency depends," says Tyler Smith, "upon the absence of perfect ovulation during pregnancy, and not to mechanical impediment."

Playfair quotes Bonnar's case from the British peerage, in which a child was born September 12, 1849, and the mother gave birth to another January 24, 1850, an interval of 127 days. Subtracting fourteen days, which Dr. Bonnar assumes to be the earliest possible period at which a fresh impregnation can occur after delivery, the gestation is reduced to 113 days, less than four calendar months. As both survived, the second child could not possibly have been the result of a fresh impregnation after the birth of the first; nor could the first have been a twin prematurely delivered, for if so, it must have only reached a little more than the fifth month and would not have lived.

Cazeau, in 1853, obtained a placenta from a woman who was delivered at full term of a fully-developed child. It had two amniotic bags; one belonged to the living child and presented no unusual appearances; the other, much smaller, contained barely a trace of fluid, but a mummified fœtus the size of one of four months' development. The dead fœtus may irritate the uterus, bring on contractions, and be expelled, the other remaining to full development.

Hamilton (1792) says: "Soon after impregnation the uterine orifices become entirely clogged up by a thick, viscid gelatine. The internal cavity is also lined by the external membrane of the ovum, which attaches itself to the whole internal surface of the womb. The Fallopian tubes also become flaccid, and, as gestation advances, are removed from the ovaries and can not convey the ovum. From these and other reasons the doctrine of superfœtation is now generally exploded."

Burton (1751) attended a woman who, in two subsequent pregnancies, had the remains of a fœtus and integuments attached to the placenta.

Glison reports the case of an Indian woman, of Brazil, who gave birth within short periods to an European, an Indian, and an African child, and says the second child must be born three months later than the first in order to be called superfœtation.

Barnes says physiologists must first prove that ovulation takes place during pregnancy, before the doctrine of superfœtation can be substantiated.

Ross, of Brighton, reports a case (*The Lancet* August, 1871), in which a patient miscarried of twins on July 16, 1870. Fifteen weeks later, October 31, she was delivered of a healthy child, but this case was one of double uterus, each side of which had been impregnated. The patient had given birth to six children at term, nothing remarkable having been observed in her labors.

Eisemann reports the case of a woman who was delivered of a second child 140 days after the first, both having been mature.

Moseley, in his work on Tropical Diseases, reports a case of a negro woman who was delivered of two children at one birth, one negro, the other mulatto. She told the physician attending her that a white man on the estate was the father of the mulatto. Cases of the same kind and in the same circumstances have been published by Bouillon, Dewees, Crotti, Guerarde, Dunglison.

Desgranges, of Lyons, speaks of a woman, who was delivered on January 20, 1780, of a seven months' fœtus, and on July 6, 1780, five months and sixteen days later than the former birth, she was delivered of a second child which had apparently reached its full time.

Bigard, of Strasburg, reports the case of a woman, aged 37, who was delivered of a lively child on the 30th of April,

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the lochia and milk were soon suppressed. On the 17th of September of the same year (year not mentioned), about four and a half months after the first delivery, she brought forth a second apparently mature and healthy child. On the death of the woman the uterus was found to be single.

Maton reports the case of an Italian lady, married to an Englishman, who was delivered of a male child at Palermo, November 12, 1807. On the 28th of February, 1808, not quite three calendar months after the preceding accouchment, she was delivered of a second male child. Other similar cases are quoted by Beck, Velpeau, and Cuming.

Madame Boivin reports a case of a woman aged 40, who gave birth to a female child on the 15th of March, 1810, weighing about four pounds. As the abdomen remained large, Mde. Boivin introduced her hand, but could find nothing in the uterus; her examination led her to suspect that there was another fœtus, either extra-uterine, or contained in a second cavity in the womb. On the 12th of May, of the same year, a second female infant was born weighing not more than three pounds, feeble and scarcely able to live.

Buffon reports a case of a female at Charleston, South Carolina, who was delivered in 1714 of twins, within a very short time of each other. One of those was black, the other white. This circumstance led to an inquiry, when the woman confessed that on a particular day, immediately after her husband had left his bed, a negro entered her room and compelled her to gratify his wishes, under threats of murdering her. The second copulation took place immediately after the first.

The above case is selected to illustrate the subject of super-fecundation or superconception, but it is erroneously reported as one of superfœtation.

Many of the cases reported as cases of superfœtation are not proven to be such beyond a doubt. Some are not well reported, showing great carelessness on the part of the reporter by omitting to state important points. The following are a few cases which resemble more or less the case which was reported by Dr. Murdock.

Dr. Cairns exhibited to the Obstetrical Society of Edinburgh, June 9, 1869, a beautiful specimen of a blighted twin which had been removed from a patient immediately before the birth of a living child at full term. The blighted fœtus had been arrested in its development, molded into the form of the uterine walls, and retained, but owing to the membranes being entire it had not become putrid (Ed. Med. Journal, August, 1869).

Dr. Flecken relates a case in which a powerful woman was delivered of a strong living and full-timed child. After the expulsion of a very large placenta, another compact, fleshy placenta in partial connection with the former, followed. The accompanying membranes contained a six-months' fœtus, the body of which had been compressed so flat that the broadest part of the cranial and thoracic region did not exceed five lines. The bones of the cranium lay separated from each other, the nasal bones projected as sharp points, and the broken malar bones penetrated the skin. While in the sixth month of her pregnancy the woman had fallen down stairs (Med. Times and Gaz. March, 1862).

Dr. Picket, of Great Barrington, Massachusetts, relates the following case, which is of some interest in medical jurisprudence: I was called to Mrs. R., of Stockbridge, whom I found in labor, which lasted about six hours. This, for her, was rather severe, but she was safely delivered of a large, healthy child, apparently at full time. While examining for the placenta, I discovered something had apparently ossified. The placenta soon passed off and with it this apparently foreign substance, which proved to be a dead and partially decomposed fœtus, of about four months.

Dr. Wilson reports the following case to

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the Glasgow Medical Society: Mrs. T., on the 21st of November last, after a short and easy labor, was delivered of a living child. She menstruated for the last time about the beginning of March. When three months or thereby advanced in her pregnancy, she had twice in succession a considerable sanguineous discharge per vaginam accompanied with slight uterine pains. She, however, paid little attention to these symptoms at the time, as they did not occasion any anxiety or alarm. The placenta on examination seemed generally healthy, with the exception of a few small indurated points of a tuberculous character, scattered over various parts of its extent. Toward the margin of the placenta was found a small fœtus closely enveloped in a yellowish fat-like mass, which lay in a groove or sulcus formed in the placenta by the overlapping or bulging over of a portion of the fœtal surface. There can be no doubt, I think, this was primarily a case of twin conception, while one was blighted at or near the third month, and the other carried to the eighth, when both were nearly simultaneously expelled from the uterus.

In the *British and Foreign Medico-Chirurgical Review* for October, 1854, Dr. Thielman relates the following case of superfœtation: In July, 1852, a peasant woman became pregnant the third time; menstruation appeared twice after conception. On the 26th of March, 1853, the pains appeared and the next morning she was delivered of a girl, small but living; the after-birth came away normally. The lochia ceased in a few hours. The secretion of milk was so scanty that the child could not be supported by it. Eight days after delivery the woman returned to her household duties, but she felt the movement of a second child in her left side. On the 18th of May, that is, fifty-two days after the birth of the first child, pains came on, and the birth of a second girl, somewhat smaller, followed. From this time the secretion of milk went on so freely that both children derived sufficient nourishment.

Dr. Atchinson communicated to the Obstetrical Society of Edinburgh a case which is supposed to be an instance of superfœtation. The subject of the case was a well-formed woman, aged 30, who had been born and brought up in India, had borne two children at full period of gestation, and then followed two miscarriages; had lately been suffering a good deal from fever; her general health not good at present; system much relaxed from debility, caused chiefly by the prevalent great heat of the season. On examination I found that after a short and easy labor the child was born and the placenta discharged. The uterus was fairly contracted. On examining the child I found it to be a case of premature birth at the seventh month, which corresponded with the mother's statement. The child did not survive over a few hours. I then examined the placenta, to which, much to my astonishment, was attached a large sac. This, on closer inspection, proved to be another set of membranes in an entire state, containing another fœtus; the placenta of this last being incorporated into that of the first-born fœtus, much smaller, but with a distinct mark of union till existing. At one point the membrane of both the fœti were inseparably united, and those of the smaller fœtus were much more dense in structure and less transparent than those of the larger fœtus. The fœtus contained in the sac (which was not opened) seemed from its size and development to have completed nearly its fourth month of utero-gestation.

Dr. ANGEAR, after quoting at great length the literature upon superfœtation, closed by saying: We have found no recorded cases precisely like that of Dr. Murdock, but several similar. In Dr. Murdock's case let us suppose that the blighted fœtus had not been found, then all who knew anything of the case would have said that there had been an abortion, or there had been no conception previous to the present

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gestation. Suppose, again, that we had never known anything about the symptoms of a miscarriage, and the blighted fœtus had been found, then we should have come to the conclusion that it was simply a case of twins with one of the foeti dying early in fœtal life and retained several months in utero as in the examples given above. The evidence that there had been a miscarriage is not positive. It is simply negative. No one saw any foetus; therefore what positive evidence is there of a miscarriage; but does that prove that there was no miscarriage? If taken for granted that there was a miscarriage, then we have a case of double conception or super-conception (not superfœtation), or twins, with one of the fœti blighted and retained in utero and expelled with the living and viable child.

EXTRACTS AND ABSTRACTS.

THE MODERN MEDICAL CURRICULUM.

Though the regulations made by the General Medical Council for the conduct of medical education in the United Kingdom are simple in principle, yet their practical application by the numerous universities and corporations involves a good deal of complexity. The council lays down a minimum curriculum and a minimum standard of knowledge, and no student can be admitted into the profession who does not attain to this standard. Broadly speaking, the regulations amount to the following: (1) The would-be student must pass an examination in general knowledge. A long list of the examinations which are considered adequate will be found on the first page of this number of the *Journal* (September 8, 1888). Having passed this test, the student can enter his name on the *Students' Register* kept by the General Medical Council. He is next required (2) to pass through a course of instruction in the preliminary sciences, chemistry, and biology, and to pass an examination therein. (3) He next receives instruction in anatomy and physiology—that is to say, the structure and functions of the body in health, and is examined in these subjects. Finally, the concluding part of the obligatory curriculum is given to (4) the study of diseased processes; and the student must pass examinations in medicine, surgery, and midwifery before obtaining a degree or diploma entitling him to practice.

The medical courses of all the universities and corporations run on parallel lines, and the familiar simile is peculiarly applicable in this instance, for as two parallel lines can never meet however far they may be prolonged, so the curricula of the universities and corporations never intersect, and the student once committed to a particular line finds it always difficult and often impossible to reach another, and as it may then appear to him more desirable, line without retracing his steps nearly to the beginning. An initial mistake, therefore, is liable to entail very serious consequences. The possession of the degree of M.D. is rightly regarded by all practicing medical men in this country as a distinct advantage, yet a very large proportion find themselves debarred from obtaining it, because the Conjoint Boards of England, Ireland, and Scotland, formed by the union of the medical corporations in London, in Dublin, and in Edinburgh and Glasgow, respectively, have no power to grant degrees. A Royal Commission is now sitting to inquire into the needs of the higher education in London, and it will in all probability recommend such reforms as will place degrees in medicine within the reach of all diligent medical students in London. Meanwhile, remembering the uncertainty of legislation, and the dilatoriness of government offices, it is the part of prudence to advise every young man at the outset of his career to consider well whether the degree of one of the existing universities be not within his means. The facilities for obtaining such

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degrees have notably increased within the last decade. The medical school of Cambridge, for instance, has grown to be one of the largest and most important in the country; the teaching, organized with the greatest care, is carried on by professors of the highest eminence, who have the command of excellent laboratories, and all the most approved educational appliances. While this school is taking its proper place in the life of its university, the medical teaching of the sister university has also been brought into a state of great efficiency, and the course of study for the degree of M.B.Oxon. has been carefully arranged to meet the needs of the modern student. Even the University of London, which has so long maintained an obstructive, if not retrograde, attitude, has promised certain important reforms which will make it possible to obtain its degrees at a less sacrifice of time and of opportunities for gaining practical knowledge. The official publication of these alterations can not be much longer delayed. Whatever may be the outcome of the present agitation a metropolitan student who has passed the earlier examinations of the university will find himself at the least in as good a position and not improbably in a better than those who may wait in the hope that "something may turn up." The creation of the Victoria University and the affiliation with it of the Owens College in Manchester, the Yorkshire College in Leeds, and the University College in Liverpool is another of these changes of recent years which have brought medical degrees within the reach of a much larger proportion of students; those who enter at one of these medical schools with a view to the degree of the Victoria University will not regret their choice. The University of Durham, with which the medical school of Newcastle-on-Tyne is affiliated, offers opportunities for gaining a degree in medicine of which students have been, perhaps, too slow to take advantage. There is, therefore, an extensive choice before the student, who will, moreover, find that all the English universities, with the exception of the Victoria University, allow a good deal of latitude in the choice of a school. Students at Oxford and Cambridge, for instance, after passing examinations in anatomy, physiology, and the preliminary sciences, can proceed to a metropolitan hospital, and take advantage of the unrivaled advantages for gaining clinical knowledge which London affords.

Of the four Scotch universities it is not necessary to speak here at length; the advantages which they offer to students are sufficiently evidenced by the large number who annually cross the Tweed in search of education and medical degrees in Scotland. Each university is a world sufficing for itself; between them there is no reciprocity, and their regulations are inelastic; Edinburgh, however, permits its undergraduates to pass limited periods of study in certain other schools. In Ireland, degrees in medicine are granted by both the universities, and the regulations of the Royal University will be found to have been drawn up in a liberal and practical spirit, in sympathy with the circumstances of modern life.

The choice of the student who is content to forego the possession of the degree of M.D., or to trust to the chapter of accidents to place it within his reach in the future, has been considerably limited in recent years by the formation of Conjoint Boards. In England he must choose between the Conjoint Board of the Royal College of Physicians and Surgeons and the Apothecaries' Society; the former will present him with the double diploma ("a triple qualification") of the two colleges, and hopes before long to be able to grant also the degree of M.D.; the latter gives him its license, which is also a "triple qualification." In Ireland there are at present two Conjoint Boards, and in Scotland one, each granting a "triple qualification."

This slight sketch may serve as a clue to the great body of information contained

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in the preceding pages, and in conclusion we would again impress upon intending students and their friends the paramount importance of looking far to the future before taking the first step; it is a source of regret that this is so, and there is reason to hope that before many years are passed important reforms may be achieved, but meanwhile we have to deal with rules and regulations as they are and not as they ought to be.—*British Medical Journal.*

THE UNITED STATES CENSUS.

The laborious work of the United States Census, 1880, has reached its twelfth volume, and Part II of that volume is one of especial interest to those engaged in the promotion of preventive medicine and sanitary science. It deals with mortality and vital statistics, subjects which in this country are included in the ordinary reports of the Registrar-General, and which do not profess to come within the range of the staff who compile our census returns.

One especial feature of the volume under consideration consists in the division of the States into groups or regions, the physical characteristics of which are more or less distinct. Thus, there are twenty-one grand groups, each such group being made up of a number of State groups. The first four comprise the Atlantic and Gulf coasts, which primarily possess a sea climate where the extremes of heat and cold are mitigated by the presence of "that great balance-wheel of temperature," the ocean. Then come the several plateaus and hill districts, the region of the great northern lakes, the great river areas, the groups characterized by plains, heavily-timbered districts, the Cordilleran range, and lastly the Pacific coast group. Speaking generally of them, in relation to the influence of topographical features on special causes of death, it is shown that the conditions of climate, the amount of annual rainfall, the amount of low-lying and swampy land, age and sex, the distribution of the people, and the proportion of the colored and foreign population, appear to be the chief causes of the differences between the several grand groups, or between different portions of the same grand group. As regards the influence of geological formation it is held that, except in so far as it affects climate or drainage, the geology of the different regions does not appear to have exercised any marked influence upon the proportion of deaths from various causes, with the exception of goitre, urinary calculus, lead-poisoning, and, perhaps, such diseases of the digestive organs as are due to inorganic impurities in the water-supply. This experience coincides very much with that which has been obtained in this country.

The volume next deals at considerable length with a number of special diseases, and very carefully prepared maps are given, showing by different shades of color the different proportions which the number reported as to each of the several causes of death bears to the whole number reported; the State group being taken as the unit of area, except in the case of diphtheria, where the county is also taken as a unit. In some areas, such as the Indian Territory, no proper enumeration of deaths could be obtained; in others, such as New Mexico and Western Texas, the statistics could not be relied on as to some diseases; but in others, as in the Northern Mississippi group, it was found practicable to shade the maps so as to give an indication of the influence of great cities in the group. * *

Information of a similar character is supplied as regards a large number of other diseases and groups of diseases, and the statistics bearing upon the subject have been compiled in much detail and in a manner well calculated to serve the purposes of public health. The material embodied in this volume is in itself of the highest merit; but it will reach even a higher standard of value when in subsequent years detailed records extending over successive periods, and prepared with

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ever increasing accuracy, admit of being placed in comparison with each other.—*The Practitioner.*

Dr. John C. Peters says it would be an easy matter to clean city streets, and at the same time purify the air, by the issue of a dilution of bromine. Sixty cents worth can be diluted in three or four hundred gallons of water, which, if sprinkled on the streets, will be found effectual in purifying the germ-laden atmosphere of the heated city. Used on the streets it is one of the most powerful disinfectants. If city streets were sprinkled with a dilution of bromine, the sewers and the sub-ways flushed with it, and back alleys and the docks disinfected, it would do much to break up diseases which rage in certain districts of our cities.—*Herald of Health.*

THE CANADIAN MEDICAL ASSOCIATION.

The Canadian Practitioner, for October, says, regarding the last annual meeting at Ottawa:

The recent meeting of this now well-established association was, in every respect, a very useful and pleasant one, and a success. The attendance was quite as large as usual.

The profession of Canada should support this association in the future more loyally than it has in the past. We would like to see three hundred instead of one hundred in attendance at each meeting. We want to keep up our connection with physicians in all parts of the Dominion, and the best way to do so is to meet at the annual gatherings of this, the most purely Canadian Medical Congress.

The association has now reached its majority. It came into existence in the same year as Confederation, and we think it can be fairly said that its success has been quite equal to that of our national progress. Many of the same difficulties which stand in the way of our national success are also barriers to the progress of our Dominion Medical Association. The chief among these is the distance between the different provinces, and the great disparity of interests, the result of such distances. It is probable, however, that in both cases the most troublesome times are past, and that the success of both will be more rapid and more steady in the future. * * *

The division of the association into three sections facilitated business very much. As was emphatically and truthfully stated by Dr. Mills, we, as members of the association, need to have greater energy and industry in preparing papers which will be of interest and profit to members of the profession generally.

Dr. H. P. Wright, of Ottawa, was elected president for the coming year.

SEMOLINA IN DIABETES.

Mr. W. Stanley Armitage says: Some time ago I had the opportunity of watching a case of persistent glycosuria very closely, and found that at a time when the ingestion of a very small amount of toast, bread, or other farinaceous food was sufficient to produce Fehling's test afterwards in the urine, a large quantity of semolina pudding could be consumed without any such result. I was induced to try semolina after hearing of the method of its manufacture. As the quality of this food seems likely to vary, I should state that what was used in this case was obtained of an Edinburgh house, and was stated to be of the best. This I mention because, if carelessly prepared, no doubt much of the farinaceous element might be retained, though I am not aware that this ever is the case. Not having heard of semolina as a food in diabetes, I should much like to hear of any one who may have tried it, and also would request other medical men to see if it can be given in other and more pronounced cases of diabetes with a like good result. If such were the case, as it could be cooked in various forms, or baked as bread, it would add considerably to a class of food which is at present only far too limited.—*Lancet*, April 28, 1888.

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BOOK REVIEWS AND NOTICES.

INTRA-CRANIAL TUMORS. By BYROM BRAMWELL, M. D., F. R. C. P. E., F. R. S. E. Philadelphia: J. B. Lippincott Company. 1888.

The past year has been exceedingly rich in literature on intra-cranial surgery. The present volume is the most ambitious and satisfactory contribution from the clinical side. It is a model of the book-maker's and engraver's art. The photo-engravings of pathological specimens put the reader in the position of an original observer. This is not perhaps the least advantage it possesses over hand-engraving. It almost eliminates the personal equation, and renders the observations of to-day capable of interpretation from the standpoint of to-morrow. In all scientific works this form of engraving and illustration is to be encouraged.

It will be a disappointment to many readers that the author has excluded from consideration abscesses of the brain, although he includes other parasitic cysts to which they are etiologically and pathologically connected. Clinically, abscesses of the brain must always be excluded before a tumor (Bramwell) can be diagnosticated.

Among the symptoms of intra-cranial tumor, double-optic neuritis occupies a full share of attention. The author gives preference to the pressure-irritation theory of Leber and Deutschmann. It seems as if the subject of localization of the tumor had not received as full and careful consideration as its surgical importance requires. Recent clinical and pathological experience are not utilized to correct the well-known experimental conclusions of physiologists. In this respect the contributions of Horsley * and Seguin † are much more satisfactory. Arthur W. Hare adds a chapter on the surgical treatment of intra-cranial tumors.

A MANUAL OF GENERAL PATHOLOGY, Designed as an Introduction to the Practice of Medicine. By JOSEPH FRANK PAYNE, M. D., Oxon., F.R.C.P. Pp. xiv and 528. Philadelphia: Lea Brothers & Co. 1888. Chicago: A. C. McClurg & Co.

Those who are familiar with the development of pathological knowledge since the appearance of Virchow's *Cellular Pathologie*, have observed that the field of pathological histology has developed more rapidly than, and somewhat at the expense of, general pathology. The causes which have brought this state of things about are evident, and need not be mentioned in this connection. The American translation of Uhle and Wagner's General Pathology has, whatever the reasons may be, not come into general use among students; is, besides, now twelve years old, and consequently does not represent present opinions, especially in regard to parasites. In view of the reasons briefly outlined above, it should not seem an extravagant statement to say that this book, if a good one of its kind, is both a much-needed and a welcome contribution. It is an excellent book in every way. The author has succeeded very well in discussing his subject in its relation to the practice of medicine. It is a conspicuous fact that a book may be excellently arranged, thoroughly cover its subject, and fully represent the latest opinion, and yet fail to reach the readers for whom it is intended, through some fault in style and attractiveness. It is a pleasure to be able to say of the volume under consideration that it does not belong in that class among books. Its style is attractive and clear, and the comprehensiveness of the discussion of the various topics is admirable. The author is evidently a teacher of ability and long experience. If the book receives the attention among medical men which its merit demands, it will have a very large circle of careful readers.

An attempt to present an outline of the manner in which the subject is treated, is intentionally omitted. In the limits of a book-notice such an attempt is unavoidably abortive, in dealing with such a multitude of details as general pathology embraces. The work of the publishers leaves nothing to be desired. E. W.

A PRACTICAL TREATISE ON THE MEDICAL AND SURGICAL USES OF ELECTRICITY; including Localized and General Faradization; Localized and Central Galvanization; Franklinization; Electrolysis and Galvano-Cautery. By GEO. M. BEARD, A. M., M. D. and A. D. ROCKWELL, A. M., M. D. Sixth edition. Revised by A. D. ROCKWELL, M. D. New York: William Wood & Co. Chicago: W. T. Keener. Pp. xxx and 758. 1888.

Since the first appearance of this work it has been of recognized value—one of the best books in the English language—on the subject. Having now reached a sixth edition it is safe to say it is still regarded with as much favor, because of careful revision with each new edition. The changes that have been made in the different editions are so expressly stated in the preface to the sixth edition that, as the work is so well known, it only needs a

* Horsley; "Topography of the Cerebral Cortex." American Journal of the Medical Sciences, April, 1887, p. 342.

† Seguin: "Contribution to the Diagnosis and Surgical Treatment of Tumors of the Cerebrum," American Journal of Medical Sciences, August, 1888.

"Cerebral Localization." Annual of the Universal Medical Sciences for 1887.

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statement of those changes, and that of the preface to this edition gives them so fully that we here produce it:

"The changes and additions in this work, as successive editions have been issued, have been confined to physics and physiology and the department of nervous diseases, where electricity has wrought its best results. While this agent is far from being a panacea, yet its increasing range of usefulness in medicine may be best illustrated by reference to these various additions. In the second edition the chapters on Electro-Physics and Physiology were largely rewritten; the method of central galvanization described and illustrated, electro-surgery more fully treated, and the relation of electricity to the diseases of children and of the skin considered in detail. In the third edition were given the highly satisfactory results following the treatment of exophthalmic goitre by galvanization of the sympathetic, and some of the sequelæ of acute diseases by general Faradization. The chapter on Electro-Diagnosis also was largely rewritten. A fourth edition was rendered necessary by a revival of the use of Franklinic electricity, due to vastly improved appliances, and contained also the extraordinary results following the application of dynamic electricity to cases of extra-uterine pregancy. The fifth edition discussed facts hitherto, and even now, but little appreciated, concerning the induction coil, its varieties, and the differential indications for their use. These statements the author deems worthy of careful consideration, and believes that further experience will result in still more important, as well as more definite, deductions. Within the past two or three years Apostoli, of Paris, has, by his experiments and the results that he has succeeded in obtaining, greatly enlarged the domain of electricity in gynæcology. The revision in the present edition, therefore, has been mainly restricted to this subject, and the chapter on the Diseases of Women almost entirely recast. The methods through which these better results in gynæcology are obtained do but confirm the truth of the observation made in the preface to the third edition, to the effect that the real scientific basis for the use of electricity in medicine and surgery is found in electro-physics more than in electro-physiology."

PHYSICIANS' INTERPRETER. IN FOUR LANGUAGES. Specially arranged for diagnosis. By M. VON V. Philadelphia: F. A. Davis. 1888.

The publisher announces that the object of this little work is to meet a need often keenly felt by the busy physician, namely: the need of some quick and reliable method of communicating intelligibly with patients of those nationalities and languages unfamiliar to the practitioner. The plan of the book is a systematic arrangement of questions upon the various branches of practical medicine, as the eye, ear, nose, throat, fevers, surgical operations, stomach complaints, general health, special diet, patient's history, etc., etc., and each question is so worded that the only answer required of the patient is merely YES or NO. The questions are all numbered, and a complete index renders them always available for quick reference, in English, French, German, and Italian.

It is bound in full Russia leather, for carrying in the pocket (size five by two and three-quarter inches, 206 pages).

The plan of the book is similar to that of the phrase-books, designed for the convenience of travelers in Continental Europe, who are not familiar with the languages of the different countries visited. This work will, no doubt, be found to serve a like purpose for some physicians, among whose patients several different languages are spoken.

HAND-BOOK FOR YOUNG AND OLD OPTICIANS. By W. BOHNE. With illustrations. Published by the author. New Orleans. 1888. Pp. 108.

This is a small guide-book, designed, as the author announces, for the guidance of opticians. He states that it was prepared for them because he was unable to find any similar book to aid him in his work, and he now gives them the result of his recorded experience as a practical optician. There is much in it of practical value to the working optician, and the advice given is generally reliable, even when he goes out of his province to advise treatment in cases of injury to eyes from various accidents, to "their friends and customers, who may, in their trouble, come running to the optician as the next proper person to give them relief."

If used as designed by the author, it will doubtless serve many well, but it should not be supposed that the instruction and advice given will qualify an optician to assume the function of the ophthalmologist, any more than reliable instruction for the pharmacist, as such, justifies him in assuming the prerogative of the physician, a fact which too many disregard.

THERAPEUTICS; ITS PRINCIPLES AND PRACTICE. By H. C. WOOD, M. D., LL. D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System in the University of Pennsylvania. A Treatise on Therapeutics. Seventh edition. Rearranged, rewritten, and enlarged. Philadelphia: J. B. Lippincott Company. Pp. 908. 1888.

That the seventh edition of this work, so familiar to the profession, has already been issued, is conclusive of the estimate in which it is held. No more

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is, therefore, required to be said regarding it than to notice some of the points in which this edition differs from the preceding six.

The author justly says: "Comparatively few persons have a full conception of the rapid progress of therapeutics, and the amount of labor involved in keeping up with this forward movement."

Nearly two hundred pages of new matter have been added to the book.

All the new drugs of any recognized merit have been considered, and in the therapeutic portion, the remedial measures that have been employed by the profession in recent years have been here presented. The book can safely be accepted as an exponent of the deserving materia medica and the enlightened therapeutics of the present day.

The mechanical work of the book is excellent. It is printed on good paper with clear type, and is in every way worthy of the publishing house of J. B. Lippincott Company.

TRANSACTIONS OF THE ASSOCIATION OF AMERICAN PHYSICIANS. Second session. 1887. Pp. xx and 254.

The report of the transactions of the association gives the seventeen papers read before it at its second annual meeting, together with the discussion of them.

A list of the one hundred members, to which the association limits its membership, and of the honorary members, is given, as well as a brief biographical sketch of each of the three members, Drs. Hudson, McBride, and Rochester, who died during the year.

A PRACTICAL TREATISE ON DISEASES OF THE EYE. By EDOUARD MEYER, Professor A L'École Pratique de Mèdicin de Paris, Chevalier of the Legion of Honor," etc., etc. Translated by FREELAND FERGUS, M.D. With two hundred and sixty-seven illustrations and three colored plates. Philadelphia: P. Blakiston, Son & Co. Pp. xi and 647. 1887.

This is the first Engl.sh edition of the work of the author, published in French in 1872, and, since then, translated into the German, Spanish, Polish, Russian, and Japanese languages. The present translation is from the third French edition.

The translator says: "The original work struck me as being not only the most concise, but, also, the most comprehensive manual on the branch of which it treats that I had ever perused, and it was this conviction which led me to undertake the translation."

The fact of the work having been translated into so many languages, with four editions of the German translation, indicates that the English translator's conviction regarding the merits of the book is shared by many others. The chromo-lithographic plates are from the well-known and justly esteemed atlas of Dr. Liebreich. The text of the work is systematically arranged, being divided into twelve chapters. It is abundantly illustrated with wood engravings of a high order of merit.

The American publishers have issued it in their accustomed good form, so well known to the medical profession.

It is a pleasure to commend a book so worthy of commendation as this one from every point of view. It merits a large circulation among English-speaking ophthalmologists.

NASAL POLYPUS, WITH NEURALGIA, HAY FEVER, AND ASTHMA, IN RELATION TO ETHMOIDITIS. By EDWARD WOAKES, M. D., London, Senior Aural Surgeon and Lecturer on Diseases of the Ear at the London Hospital; Surgeon to the London Throat Hospital. With illustrations. Philadelphia: P. Blakiston, Son & Co. Pp. vii and 140. 1887.

The chief object of this little book, it is stated by the author, is to discuss the subject of ethmoiditis, and to present its claims upon the profession for more consideration than it has usually received. Other affections of that region are incidentally considered, whether standing in the relation of cause or consequence, or as a complication of that affection. The book is divided into twelve chapters, and treats of a subject that is now attracting much attention, for it is not yet clearly established as to just what relation, from an etiological standpoint, affections of the naso-pharynx hold to affections of the ear. There is concurrence of opinion that there is an intimate relation between them, and in the effort that is being made to get facts and formulate ideas regarding the pathology, this book is timely, and will be found to be useful. The merit of the previous writings of the same author on kindred subjects has been recognized, and this one is welcomed as bringing further contributions where and when wanted. The cuts given are well executed, and aid in elucidating the text instead of confusing, as not infrequently happens.

CHEMICAL EXPERIMENTS FOR MEDICAL STUDENTS; Arranged after Beilstein. By W. S. CHRISTOPHER, M. D. Cincinnati: Robert Clarke & Co. Pp. 84. 1888.

The author says in his preface that "the object has been to simplify and limit, rather than to multiply, the number of experiments," and "the application of the experiments in inorganic chemistry to systematic qualitative analysis has been omitted, as not adapted to the wants of the medical student."

In the limited time available for practical chemistry in most medical colleges, it becomes desirable for the student to acquire the general principles of the science, and such special facts as may be most

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useful to him in practice, as directly as possible; to study chemistry from the medical rather than from the chemical standpoint.

The experiments cover work with the principal metals and acids, using Beilstein's examples. In addition, the more important alkaloids and some organic compounds of medical interest are considered. In physiological chemistry, the work deals with the proteids and carbo-hydrates, the digestive processes, blood, bile, milk, and urine.

The acid tests recently introduced for the clinical examination of stomach contents are also given.

It may be used in conjunction with any systematic treatise on the subject.

Extra blank leaves are inserted at the end for students' notes.

A SYNOPSIS OF THE MEDICAL BOTANY OF THE UNITED STATES. By J. M. G. CARTER, M. A., M. D., Ph.D., Sc.D., Member of the American Medical Association. Pp. 176. St. Louis. G. H. Field, 1888.

In his introduction the author gives the number of the medical plants in the United States as embracing "about 140 orders, 620 genera, and more than 1,300 species and varieties." The statement is also made that "the list is fairly complete of plants east of the Mississippi River," and that, regarding those in the vast country lying west of that river, "we must feel that our medical knowledge of that region is comparatively meagre."

The parts of the plants from which their active principles are taken, and to which their remedial virtues are due, are given, and attention is drawn to the established fact of the changes which result in plants cultivated elsewhere than in their native soil, citing the fact that cinchona plants, growing in hot-houses, are nearly free from quinine, etc., etc. The work indicates care and labor in its preparation, and contains interesting and useful information.

A CLINICAL ATLAS OF VENEREAL AND SKIN DISEASES, INCLUDING DIAGNOSIS, PROGNOSIS AND TREATMENT. By ROBERT W. TAYLOR, A. M., M. D. Parts I and II. Venereal Diseases. Philadelphia: Lea Brothers & Company. 1888.

If the demand for this atlas is commensurate with the need for it among the profession it will be large indeed. It will be of no small value even to specialists, and to those physicians educated at the many medical colleges of this country which are so conspicuously lacking in both clinical material and teaching, it will prove a veritable boon. The text is admirable in every way, and the presswork and general appearance are excellent. Of course, in all books of this class the carping critic finds fault with the colors in the lithographic plates. This inability to accurately reproduce the natural colors seems liable to prove a lasting stumbling-block to the lithographer's art. In this particular atlas; however, the coloring is fully up to the average, and the selection of subjects has been made with admirable judgment, the aim of the editor being to present clear types rather than exceptional cases.

The work is to be completed in eight folio parts, measuring 14 x 18 inches, embracing fifty-eight colored plates, numerous figures and engravings, and about 400 pages of text.

MANUAL FOR HOSPITAL NURSES, AND OTHERS ENGAGED IN CARING FOR THE SICK. By EDWARD J. DOMVILLE, L. R. C. P. Lond., etc., etc. With Recipes for Sick-Room Cookery. Sixth edition. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener. 1888. Pp. iv and 100.

This manual contains much information of immediate use to those engaged in the care of sick, and will be found a great convenience to the pupil-nurses in the various training-schools for nurses. It takes a comprehensive view of the subject, and presents the dignity, as well as the responsibility, of the position of a nurse. In civilized communities persons are no longer engaged as "nurses" because they are too ignorant, or lazy, or indifferent to do anything else than engage in so-called nursing. It has now become a profession—as useful, and, in many respects, as honorable, as the medical profession, and only by the proper co-operation of the two can the best results be obtained.

The instructions given in the manual cover the whole field of the duties of the faithful nurse, and cannot fail to benefit all who will study them intelligently. The work can be commended, unqualifiedly.

ANÆSTHETICS; THEIR USES AND ADMINISTRATION. By DUDLEY WILMOT BUXTON, M. D., B. S., Member of the Royal College of Physicians, etc., etc. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener. Pp. xii and 164. 1888.

One aim of this little manual is to direct attention to the fact that anæsthetics are administered too often by inexperienced and incompetent persons —those who do not realize the responsibility which attaches to their administration.

The work is divided into twelve chapters, the first of them being devoted to the history of anæsthesia and anæsthetics. Then the subject of the preparation of the patient for an anæsthetic, and the choice of the one to be used, bearing in mind the age and condition of the patient, pathological condition, idiosyncrasy, etc., etc., the different gen-

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eral anæsthetics, and their combination. Inhalers, accidents and their treatment, local anæsthetics, the medico-legal aspects of the administration of anæsthetics, etc., etc., are considered. The work presents the subject from a very practical standpoint. It contains much useful information, which is presented in a condensed form. It is interesting reading, and observance of the suggestions made will do much to guard against avoidable accidents, which occur too frequently.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. ARMY. Volume IX.

The ninth volume of the valuable index catalogue has just been issued, and begins with "Medicine (Popular)" and ends with "Nywelt." It has been prepared with the same care, and issued in the same form as its predecessors, that are so well known to the profession, and which are so creditable to the medical department of the army, and to the Government whose liberality provides for the issue of the catalogue.

THEINE IN THE TREATMENT OF NEURALGIA. Being a Physiological Contribution to the Therapeutics of Pain. By THOMAS J. MAYS, M. D. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener. Pp. 84. 1888.

This is a reprint from the *Polyclinic*, and is issued in the form of a small manual, consisting of four chapters, an appendix, and an index.

The first chapter gives a history of the tea-plant, and the discovery of the alkaloid theine (in 1827) found therein, as well as a description of the alkaloid.

The second chapter describes the physiological action of theine.

The third chapter gives the special therapeutic indications for the use of theine.

The fourth chapter is devoted to the consideration of forty-eight cases of neuralgia, in its varying forms, in which theine was used, and presumably with marked benefit. It might not have been amiss to have added another chapter and given the other side of the picture—the evil results of excessive use of infusion of the tea-plant, including this alkaloid.

PTOMAINES AND LEUCOMAINES, OR THE PUTREFACTIVE AND PHYSIOLOGICAL ALKALOIDS. By VICTOR C. VAUGHAN, Ph. D., M. D., and FREDERICK G. NOVY, M. S. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co.

This is a book which deserves special attention. It is the first attempt which has been made to present in book form the literature of the ptomaines and leucomaines, and the authors have succeeded in putting in succinct form the pith of the various contributions on the subjects. The citation of the contributions is very valuable, and covers some twenty pages.

The book makes it evident that those who make any pretensions to the application of the general principles of chemistry, bacteriology, or physiology to the practice of medicine cannot afford to be ignorant of the general principles involved in the study of the ptomaines and leucomaines.

The following constitute the chapter headings: Definition and Historical Sketch of Ptomaines, The Relation of Ptomaines to Disease, The Importance of Ptomaines to the Toxicologist, Methods of Extracting Ptomaines, Chemistry of the Ptomaines, Chemistry of the Leucomaines, The Pathological Importance of the Leucomaines, Literature.

The authors are to be complimented for presenting to the profession a compendium of valuable information. Pp. 314. 1888.

MANUAL OF CHEMISTRY. By W. SIMON, Ph. D., M. D. Second edition. Thoroughly revised and greatly enlarged. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co. 1888.

This is a regular text-book on chemistry, intended for students in pharmacy and medicine. It is illustrated by colored plates to make more intelligible the various reactions in which color forms an important item. A series of questions are found at intervals through the book, so that the student may ascertain for himself how far he has appropriated the information imparted. The text is clear, and the general presentation of the book, as a whole, will compare well with other recent text-books on the same subject.

A TEXT-BOOK OF PHARMACOLOGY, THERAPEUTICS, AND MATERIA MEDICA. By T. LANDER BRUNTON, M. D., D. Sc., F. R. S. Adapted to the U. S. P. by FRANCIS H. WILLIAMS, M. D. Third edition. Philadelphia: Lea Bros. & Co. Chicago: A. C. McClurg & Co.

The general title, and the reputation of the author, will sufficiently indicate to the student the character of the book. As will be seen, it is the third edition, and the author has, as far as possible, made it conform to the ideas of modern investigation. The struggle for existence between the organism and the microbes which invade it, as presented by Metschnikoff is well illustrated. The absorption and elimination of ptomaines and leucomaines receive attention; in fact, the whole chapter on the action of drugs on protoplasm, blood, and low organisms, some fifty pages, will be found as complete as is practicable under the circumstances. The book is well printed, and creditable in every way. It will be found to be a convenient book for reference by physicians and pharmacists.

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MISCELLANY.

MEDICAL NOTES.

A general meeting of the Tōkyō Igaku Kwai (Tōkyō Medical Society) was held on May 24, at 6 p. m., in the room of physiology, University of Tōkyō, when the following addresses were given:

Dr. Hisayasu Mita—Influence of fevers on nervous diseases.

Dr. Yoshito Inoko—Experience of the medical value of the oil of gynocardea odorata and pterocarpus flavus.

Dr. Seiki Ogata—Experiments in preserving meat with carbonic acid.

Sixth general meeting of the Japanese Private Sanitary Society was held May 26, at 1 p. m., in the great hall of the Engineering College, at which about 1,000 members and guests were assembled, including both men and women.

The Obstetric and Gynæcological Society's first meeting was held June 2, at 3 p. m., when the following speeches were made:

Dr. Kamejiro Ishii—How to determine months of pregnancy.

Dr. Gen-iku Miyaki—Condition of fœtus born in the period of six months and twenty days.

Dr. Hēnoshin Inoue—Cerebral anæmia caused by abortion.

Dr. Kenzo Kusuda—Medical discrimination between multiparæ.

Dr. Ikujiro Sakurai—Artificial pregnancy.

Dr. Dekisuke Hanaoka brought a woman of 41 years old for diagnosis.

A meeting of the Society for Investigation of State Medicine was opened May 25, at 5.30 p. m., when the following speeches were made:

Dr. Kentaro Murata—How to cure syphilis.

Dr. Sakae Furukawa—Propagation of the people.

Promotion to rank and appointment to office—On 22d of May, Sankei Hagiwara was appointed to be physician to H. I. M. the Emperor.

On 29th, 2d class of merit, Kyokujitsu Jūkōshō, was conferred on Kensai Ikeda, Hakase, Physician to H. I. M. the Emperor and Director General of the Army, and Hōsei Ito, Physician to H. I. M. the Emperor.

On 7th, Degree of Hakase was conferred on each of the following persons: Wami Taguchi, Seiki Ogata, Masakichi Sasaki, Ryōsei Koganei, faculties of medicine, University of Tōkyō and Susumu Satō.

Examination for the Practice of Medicine at Tōkyō—The whole number of applicants was 1,989, of which 1,322 were examined and 667 were not examined, on account of sickness or other circumstances; of these, 593 passed successfully and the rest failed. Applicants for dentistry were seventeen, of whom five were successful and twelve failed.

Examinations for the same at Kyōtō—The whole number of applicants was 622, of whom 338 were examined and 284 not examined, on account of sickness or other circumstances, and 84 were successful; the rest failed.

Dismissal of Chinese Physicians from the charge of the Prince Haru-no-miya—As the treatment of Chinese physicians is generally mild, it is still thought by some Japanese, especially by old men and women, that children should be treated by them. Whether from this idea or not, the Prince Haru-no-miya has been heretofore under the care of the Chinese physicians Sōhaku Asada and Teiken Fukui. But recently they were dismissed, and now the prince is under the care of Kensai Ikeda, Physician to H. I. M. the Emperor.—*The Sei-i-kwai Medical Journal*, Tōkyō, Japan.

TRIBROMPHENOL AS AN ANTISEPTIC.—Grimm claims considerable antiseptic value for tribromphenol, which is separated by the action of bromine on carbolic water solutions in the form of soft, white crystals, fusible at 95 Cent. Tribromphenol, accord-

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ing to Grimm, does not irritate the mucous membrane of the mouth, pharynx, or nose; nor does it effect the skin, even near wounds. When the powder is sprinkled on recent wounds more or less violent burning ensues, and the wound surfaces are slightly cauterized, and become necrotic superficially. It severely irritates granulating wounds, and slight hæmorrhages sometimes occur. Atonic pale granulations are very quickly excited to reparative action by the drug. It acts as an energetic disinfectant on ulcers and gangrenous processes, and is, therefore, recommended for impregnating (2 to 3 per cent.) bandages, for antiseptic salves, preparations of bacilli, etc. It was found that a 1 per cent. ammoniacal solution destroyed the bacteria in putrefying liquids within thirty minutes. Trials of it with gauze saturated with various fermentable substances gave excellent results as showing its value as an antiferment and antiseptic.—*Deutsche Med. Zeitung*, No. 52, 1888.

HYPODERMIC INJECTIONS OF ANTIPYRIN.—Derlon claims that aqua lauro-cerasi is an excellent vehicle for a hypodermic injection of antipyrin, since it lessens the pain of the injection, though it adds to the pain of morphine solutions. Derlon uses the following formula :

Antipyrin ..... 30 grains.
Hydrochlor. of Cocaine..... 1 "
Aqua lauro-cerasi..... 1 drachm.

Revue Gen. de Clin. et de Therap., July 12, 1888.

USE OF ANTIPYRIN WITH QUININE.—Derlon says that if antipyrin is added to the prescription containing quinine in cases in which large doses of quinine are necessary (as much as 15 grains, or more), the unpleasant effects of the quinine are obviated. He adds 3 grains of antipyrin to each 5 grains of quinine. This, he says, also increases the antipyretic effect of the quinine, and prevents quinism. The mixture is better tolerated by the stomach than the quinine alone.—*Revue Gen. de Clin. et de Therap.*, July 15, 1888.

FORMULA FOR BRONCHITIS.—Céhron's formula is as follows :

R.

Terpine ..... 5 grammes.
Glycerine.....
Rectified spirits of wine..
Sirup of honey, aa.....70 grammes.
Vanilline .....2 centig.

S. Two tablespoonfuls daily.

Each teaspoonful contains 50 centig. (grs. 10) of terpine.

University Medical Magazine.—The first number of this *magazine*, edited under the auspices of the alumni and faculty of medicine of the University of Pennsylvania, has been issued, and in good style.

On the cover is a portrait of John Morgan, the founder of the medical faculty of the University of Pennsylvania. Also the names of the editorial staff, consisting of an advisory and an editorial committee. The table of contents embraces "Original Articles, Memoranda, Laboratory Notes, Department Notes, Editorial, Society Proceedings, Book Notices, Miscellaneous." The publisher is A. L. Hummel.

ANNOUNCEMENTS.

The sixteenth annual meeting of the American Public Health Association, will be held in Milwaukee, Wisconsin, Tuesday, Wednesday, Thursday, and Friday, November 20, 21, 22, 23, 1888.

The next annual meeting of the American Academy of Medicine, will be held in New York, on November 13 and 14, 1888.

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The Medical Journal and Examiner.

VOLUME LVII. DECEMBER, 1888. NUMBER 6.

ORIGINAL COMMUNICATIONS.

THE PATHOLOGY OF JOINT AND BONE TUBERCULOSIS.

BY WELLER VAN HOOK, A. B., M. D.

The pathology of tuberculosis has been, within recent years, much elucidated by studies founded upon the knowledge that the disease was, under all circumstances, the result of the hostile action of the specific bacillus of tuberculosis. When this microbe's well-known reaction to some of the aniline dyes was promulgated, pathologists endeavored to ascertain the methods by which infection was effected, the position of the microbe in the invaded tissues, its action on the cells and fluids, and finally its own ultimate fate. The field of minute anatomical investigation, thus enlarged, was still further extended by the suggestive labors of Flemming, Retzius, Fol, Rabl, and others in the study of the methods of cell-multiplication, and especially the "indirect method" through the process of karyokinesis, the most common mode of reproduction, by the primary division of the nucleus after a series of changes in the most active part of the protoplasm, the "chromatin," or tangible part. The study of tuberculosis in its gross relations is so much simplified by a knowledge of these processes that it will here be preceded by a short review of the subject of tuberclegenesis.

Baumgarten was one of the most diligent investigators in the enlarged field of study opened up by the investigations of Koch and Flemming and their followers. His researches were made chiefly upon inoculation tuberculosis, often using the anterior chamber of the rabbit's eye. On injecting cultures of bacilli into the anterior chamber, it was found that after five days bacilli had found their way into the iris. After their invasion of the iris, cell-proliferation was demonstrable. This cell-proliferation is the first step in the formation of the tubercle after the bacteria have reached the nidus required. It involves the fixed connective-tissue corpuscles, which undergo karyokinetic changes, taking on the reproductive activity of embryonal connective-tissue, and form, by thus rapidly multiplying, heaps of so-called epithelioid cells.

The first step in the process consists in the increase in volume of the active cell. At the same time the entire cell becomes turgid and more rounded. The nucleus, whose chromatin in the resting state presents the appearance of a simple framework, enlarges and begins to exhibit active changes in its chromatin preparatory to division. The nucleus having divided, two daughter-cells are formed by the division of the cell-body. After reproduction has

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thus begun, it continues in the same tubercle, by repeated division of the peripheral epithelioid cells of the mass. The bacilli are not numerous within the dividing cells, but accumulate in the cells that are at rest. They are also found in abundance in the inter-cellular lymph-spaces.

Multinuclear giant-cells may or may not be formed at the centre of the nodule, probably from the division of the nuclei of the fixed cells. Vascular changes are brought about early. Vessel walls are attacked and their endothelium proliferates. A true inflammation being present, we find, as would be expected, an abundant emigration of leucocytes, which form a more or less compact zone of so-called lymphoid or round cells about the periphery of the tubercle. This inflammatory product may be so abundant as to obscure all other elements, thus producing what is knowu as a "small-celled" tubercle.

Despite the fact that the blood vessels are so early affected, no new vessels are formed and the tubercle remains avascular. Sooner or later the regressive changes known as coagulation necrosis, due to lack of nutrition, begin in the round cells, whose nuclei shrink, break down, and become fluid. Then the epithelioid cells die, become homogeneous, lose their nuclei, and become pale, glistening masses. In the giant-cells partial necrosis sometimes takes place, which, according to Weigert, is recognizable by diminution of staining capacity. The nuclei are then to be seen in one part of the cell, as at a single pole, at one side of the cell, about the whole circumference, or even in its centre only. The bacilli are often found at the junction of the living with the dead protoplasm, and may lie even in the non-nuclear part. Finally, such changes taking place in the individual cells, the whole tubercle can become a single homogeneous mass, or a collection of smaller masses, each representing a single cell, or even a granular mass which contains more or less fat. Thus, the tubercle loses its gray translucent quality and becomes an opaque yellowish body, which, by an exaggeration of the same process, may result, in combination with a quantity of serous exudate, in an emulsion-like fluid which, in large collections mixed with leucocytes and débris of connective tissue, is known as the "pus" of cold abscesses.

The contest, therefore, between the living active tissue-elements on the one hand—an army representing physiological resisting power—and, on the other hand, the hosts of microbic invaders standing for the advancing disease, can not be considered unreal. Indeed, it must be taken into consideration if we would understand the probable cause of the varying course of tubercular joint and bone disease. Schüller has proved experimentally that the microbes, having effected an entrance into the blood by way of the lungs, may be carried to parts remote. When such a mass of inimical foreigners has reached a situation favorable to the physiological functions of the bacillus, a multiplication of bacilli takes place with great rapidity. It is at this stage that the factor of local tissue-resistance and that of the invading forces are to be opposed to one another. On the one hand are the microbe's power of marvelously rapid multiplication; his ability to transform soluble albuminoids into the chemical constituents of his own body; his probable power of throwing off an alkaloidal waste-product that has a toxic action upon the tissues of the patient; his ability to resist alterations of temperature far greater than those to which his own activity excites his host; and finally, the almost incredible faculty of entering as a last resort that still lower condition of life known as the spore form, in which he can patiently await, oblivious to all but the most severe forms of external opposition, a better opportunity for self-multiplication. On the other hand, we have the cellular elements of the animal body, especially the leucocytes and the fixed connective-tissue corpuscles, the latter capable of taking upon themselves a state of active embryonic

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proliferation, aided by a more or less active circulation of nutrient fluid.

Such, we may say, are the abstract factors in the struggle, the advantages of the opposed individuals.

But there are other subtler and, as yet, ill-understood moments affecting the activity of each element that can not be ignored. The significant labors of Pasteur in the diminution of the virulence of several microbes by special methods of culture indicate the probable existence of varying degrees of invasive and resisting activity on the part of micro-organisms in general. And these observations on the limitations of microbic virulence find a striking analogy on the part of the animal tissues in the long observed clinical fact that each individual of our species presents a resisting power to tuberculosis peculiar to himself. When our knowledge of the tubercle bacillus is more extensive and exact, these considerations will, doubtless, find an abundant and important application in the study of the invasive powers of tuberculosis. Koenig, probably the most experienced of clinical surgeous in respect to this disease, has divided cases of tuberculosis in bones and joints into two classes—first, that "dry granulating form," in which caseation is retarded or absent, and peripheral extension is limited by fibrillation of the newly formed connective tissue, in a word, the cases tending to recovery; and second, the "moist form" of the disease, in which fluids are in excess and the disease advances rapidly by peripheral infection. It is to be regretted that pathologists have not furnished us as yet with any conclusive evidence as to which of the two forces, invading or resisting, is responsible in individual cases for this formation of "cold abscesses" in some instances, and "dry granulation-mass tuberculosis," in others. For the present, we can only refer to the general considerations mentioned, and say vaguely with Koenig that cases have tendencies to this or that form.

PRIMARY TUBERCULAR SYNOVITIS.—That minute masses of foreign material could be deposited in joint cavities after traumatism was proved by Schüller, as follows: A rabbit or goat having been selected as the animal for experimentation, a knee-joint was bruised with a few slight blows of a mallet, and at the same time an injection was made into the trachea or a large venous trunk of a quantity of finely divided, aseptic coloring matter. The pathological changes produced by a simple contusion depend on the amount of force and the manner of its application. The most constant and significant change is the occurrence of hæmorrhages into the articular and peri-articular structures. When injections of coloring matter were made simultaneously this matter was found on post-mortem examination in the effused blood and was directly proportionate in quantity to the degree of hæmorrhage. Such injuries to blood-vessels are followed by simple inflammatory reaction of a reparative character. Vascular dilatation, local œdema, and emigration of leucocytes are constant factors. If no foreign material is present except the finely-divided aseptic coloring matter recovery is rapid. Proliferation of its endothelium and connective tissue soon effects definite closure of the vessel, the effused blood is removed, the œdematous fluid is carried away by the lymphatics, and the vascular tissue recovers its tone. As for the coloring matter, the greater part of it remains in the connective-tissue spaces as a relic of the experiment, while eventually a part of it is carried by phagocytes to the nearest lymphatic gland.

Having thus proved that foreign masses floating in the blood could be so easily deposited in the tissues of the joint, it was but a step to the study of the fate of tubercle bacilli similarly introduced into the blood-current. Instead of injecting inert matter into the trachea, or directly into the vascular system, finely-divided tubercular matter was used. The same injuries as before were produced in the joints.

After varying periods the amimals either died of tuberculosis pulmonum or were

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killed, That the bacilli with which the blood was thus artificially infected were, like the granules of coloring matter, deposited in the injured joint-cavities at the site of hæmorrage was proved by the facts that tubercles sprang up only within the damaged joints and that blood-pigment was found within the tubercle cells.

Infection of a part having occurred at a point of minute hæmorrage, tubercles spring up in the immediate vicinity. In joints, the neighboring synovial membrane becomes vascularized, thickened, and red, and is eventually permeated by tubercular granulation tissue which has a cheesy, crumbly character.

Rarely does this process remain entirely local. For the infectious material is readily carried to remote parts of the joint cavity where a favorable point may be found for its development. Thus, several localities may be consecutively affected or the tuberculosis may become diffuse. But even in parts remote from terbercular foci, the synovial membrane exhibits a reddened vascular appearance, and without the presence of tubercles may eventually become covered with a layer of pale indolent granulations. Granulations of both kinds not infrequently fill the entire cavity of the joint and distend it till it gives to the touch a spongy resilient feeling that is useful as a diagnostic point.

It is these granulations which are so well-known to the clinical surgeon as the grayish gelatinous matter that represents the destroyed synovial membrane and causes the disease to be so frequently described as fungous, gelatinous, spongy, or hyperplastic granular arthritis.

Associated with such a synovitis it is not uncommon to notice the presence of morbid products within the joint. Clinically their appearance presents great variety. Their consideration is much facilitated by reference to their constituents, which may be divided into liquid and solid.

Of the liquid constituents the serous element is the predominant one, and when to this fibrin is added, we have a true serofibrinous effusion. Adding to the serum a quantity of solid tubercular matter in a state of coagulation necrosis, and an abundance of leucocytes which are usually, though not always, found in these exudations, we have a joint cavity filled with tubercular pus, an "*empyæma articuli.*"

Incidental hæmorrhages will be represented by the presence of red corpuscles or of blood pigment. The solid bodies observed in these joints are chiefly the result of the coagulation of fibrin into masses similar to rice bodies. They are usually deposited on the granulation layers, and become detached at a later period. They are especially observed in the form known as fibrous tuberculosis, in which *hydrops articuli* is very common.

While these active processes have been going on within the synovial cavity, the cartilage of the joint has played an entirely passive and subordinate part. Its avascular character forbids its becoming the primary seat of tubercular lesions, and it is only when infection has destroyed a part of the protecting synovialis that grave changes in it can occur. Thus, defects can be found in its substance, or only a local thinning. If the joint is filled with pus, a kind of maceration affects the surface of the exposed cartilage. As a result of chronic-tubercular inflammation, a metaplasia of the cartilage takes place, the cartilage superficially being transformed by vascularization into mucous membrane.

Consecutive to synovial tuberculosis bone affections must be regarded as either directly or indirectly the result of that process. In the former case the disease process acts immediately upon the bone tissue, producing eventually a resorption of the bone substance. But even where no infection has occurred a fatty atrophy of the bone takes place, due to the faulty nutrition of the parts, and therefore indirectly to the joint disease.

The periarticular tissues, in the more advanced form of the disease, are involved in

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œdematous infiltration. The connective tissue takes on a coarse, fibrous, bacon-like character, while the skin acquires the well-known, smooth, shining, and pale appearance of *tumor albus*.

TUBERCULAR ABSCESSES.—When, however, the para-articular tissue is reached by bacilli from the diseased joint, a condition is presented that is of great interest clinically. Since the synovial membrane may be regarded as a lymph sac, it is not unreasonable to suppose that bacilli might be carried by lymphatic vessels to the peri-articular tissues, just as we know that they are often carried to distant lymph glands. But the usually recognized method of infection is by direct outward extension of a tuberculosis of the articulating bones, or of the synovial membrane. When a synovitis tuberculosa occurs, in which there exists the tendency as above discussed to production of so-called pus, the synovial membrane is soon distended to its utmost capacity. Pressure atrophy occurs at that part of the capsule which is most imperfectly supported, and which is most weakened by morbid processes within. Rupture of the capsule relieves the pressure by permitting the escape of the fluid into the extra-articular tissue, and in many cases, collapse having taken place, the rent in the capsule is repaired by cicatrization. In this way cold abscesses often arise without the pathologist being able to find the exact point of origin. Hence it was formerly contended by many that they were often due to simple irritation. A space being formed by such a forcible means, it will naturally occur in that tissue whose mechanical resistance is least, namely, the loose connective tissue between muscles, membranes, viscera, and other structures. The newly invaded connective tissue is first covered by a layer of fibrin which is formed from the sero-fibrinous fluid. This forms a matrix for the development of tubercles. The original connective tissue below now rapidly proliferates, and speedily becomes thickened, and in this way a so-called pyogenic membrane is formed. Such an abscess may be distended till its own wall in turn ruptures, and discharges the tubercular débris, either into hitherto undisturbed connective tissue, into the outside air, or into some cavity or viscus of the body. The direction in which such abscesses spread is determined, therefore, by their point of origin, and by the relative resistance of the tissues in their vicinity.

The rupture of such an abscess into some of the important organs and cavities of the body may be followed by shock, embolism, general tubercular infection, or other dire consequence. Rupture into the external air is almost invariably followed by mixed infection of the abscess cavity, and by the ultimate formation of fistulæ leading into the joint.

BONE TUBERCULOSIS.—In reviewing the subject of primary synovitis tuberculosa omission has been made of that form of synovitis observed in the joints of those who have died of general miliary tuberculosis. Miliary tuberculosis of bone, occurring under the same circumstances, is of equal interest to the student of pathology and equally unimportant to the clinical surgeon. In each case the constitutional nature of the disease and its speedy termination in death precludes local interference.

There are three forms of bone tuberculosis, however, which, on account of their frequency and intrinsic importance, as well as on account of the grave complications which they may superinduce, demand the earnest study of the clinical surgeon. The three forms to which I refer are tubercular osteomyelitis, and local intra-osseous tuberculosis, in the one case associated with the "wedge-formed" sequestrum, and in the other case occurring as a tubercular granulation mass.

The peculiar appearance of the wedge-formed sequestra led to suspicions long ago that their origin must be sought in embolism. It was in 1884 that Koenig added the weight of his opinion to previous suggestions, and in 1886, W. Müller

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published the result of a series of experiments undertaken to demonstrate the origin of bone tuberculosis. His most important experiments consisted in injecting into the nutrient arteries of rabbits' and goats' tibiæ a variable quantity of tubercular matter suspended in a very weak salt solution. The result was chiefly dependent upon three circumstances:

1. The relative quantity of tubercular matter and of salt solution.

2. The size of the masses suspended.

3. The proportionate number of bacilli in the material injected.

For if a relatively large mass of bacteria-bearing matter was lodged somewhere within a nutrient artery, it would naturally tend to infect a large mass of tissue corresponding to the area supplied by the vessel affected, and produce ultimate necrosis of a wedge-shaped mass of bone. But when the relatively large nutrient artery of such a bone as a phalanx or a carpal or tarsal bone was plugged near the entrance of the vessel into the bone, obviously an osteomyelitis tuberculosa would occur—that is, the whole of the bone would be infected. Supposing, on the other hand, that the masses used were minute enough to reach some of the smallest branches of the nutrient artery, it is shown that a mass of tubercular granulations is produced that involves directly in necrosis only very small masses of bone. Proceeding still further, a capillary lodgment of bacilli results in a miliary tuberculosis, and a part of the injection may even pass through the capillaries into the veins and thence infect the system at large.

The chief interest, therefore, lies in the study of the "wedge" and "granulation-mass" forms. Although the "wedge" form is likened to the hæmorrhagic infarct, its nature is essentially different. For here the assumption of the existence of terminal arteries, as averred by Cohnheim, is entirely unnecessary. When a tubercular mass has lodged in an artery supplying a considerable area of bone, the nutrition of that area is of course much impaired. The plug of infected material immediately sets up an endarteritis tuberculosa which ultimately results in the destruction of the arterial wall and infection of the para-vascular tissue. Simultaneously tubercular granulations spring up at the border line between the healthy tissue and that supplied by the affected artery. In this way sequestration is early effected. The new-formed connective tissue shows a tendency to contract and thus to limit the spread of the disease throughout the neighboring bone tissue, which usually beeomes somewhat porotic. The limiting layer of granulations has, however, an osteoclastic action upon the bone within it, which, however, even in the most favorable cases, is probably not completely resorbed (Koenig), thus accounting for the occurrence of relapses after recovery seemed perfect. At the same time this connective-tissue layer firmly binds the sequestrum to the healthy bone tissue.

In children the cartilage of the joint, in case the artery involved lies near one, may be part of the sequestrum; but its involvment is usually secondary. For infection by continuity of tissue is easily effected in this direction along the Haversian canals. The cartilage succumbs to the action of the disease, and the capsule of the joint is exposed. The sequestrum may form beneath the periosteum, and in that case the exit of the tubercular matter takes place through that member into the soft tissues without.

Embolism of a smaller artery than that mentioned does not result in the formation of large sequestra, but in the formation of a granulation mass, in which, however, small particles of bone may be found. An endarteritis is the beginning of the local disease process, after embolism has occurred. The bacilli having gained access to the surrounding tissues, tubercular granulations spring up and form a focus within the bone. The tendency may be toward rapid softening and pus formation, or toward peripheral

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cicatrization. This form also usually occurs in the spongy bone near the periphery, and may consequently infect either the periosteum or a joint cavity.

Synovitis tuberculosa, produced either by infection from a sequestrum focus or from a granulation-mass, partakes of the morbid character and tendency of the original focus. The pathological anatomy of the synovitis, moreover, varies in but slight particulars from that which is observed in synovitis arising from direct hæmorrhagic infection.

The energy of the tissues is manifested under some circumstances not only by the limitation of the progress of the disease, but also by the formation of osteophytes and by the thickening and hardening of pre-existent bone.

884 West Madison Street.

THE INFLUENCE OF THE WORK OF THE ILLINOIS MEDICAL-PRACTICE ACT UPON MEDICAL EDUCATION.

BY H. A. JOHNSON, A. M., M. D.

Read before the American Academy of Medicine.

Among the causes that have awakened a new interest in the subject of medical education there is no one, perhaps, more important than the popular study of sanitary science. If the preservation of our homes is a question of science, the care of our bodies is also a matter of science. The American Public Health Association developed in the public mind an interest in these problems, the outcome of which has been the enactment of laws looking to a better condition, so far as sanitation is concerned, of our towns and cities.

Along with this, there soon came to be recognized a possibility of improving the instrumentalities for treatment of the sick. The agents of treatment became the subjects of legislation. Laws were passed regulating the practice of medicine. This meant that the people were satisfied that there was something more in medicine than a natural gift, something more than simply experience gained at the bedside of the patient without previous study.

The Illinois State Board of Health was created in 1877. One of the first acts of the board, as the executive of the medical-practice act, was the passage of a resolution to the effect that the diploma of a college graduating two classes in one year would not be considered to be in good standing after the first day of July, 1878. The result of this action of the board was to compel some of the prolific schools to adopt a single graduating term. It also called the attention of the profession and the people to the fact that a pressure could, in this manner, be brought to bear upon the medical colleges through legislation. If a State can exclude from practice within its own borders those who do not reach the required standard of attainments, it immediately becomes a matter of importance to the colleges that their curricula be made sufficiently broad and high to meet this standard. It was, in fact, true that persons, graduates of colleges that up to that time had full classes, were compelled to pass an examination before the board as if they were not graduates.

Some complaint was made; but there was no help for them, as the courts decided that the board was empowered to define the phrase "Medical colleges in good standing" as used in the act.

In the meantime, these schools were obliged to change their course or lose their classes. A few do still graduate two classes in the same year, but such institutions do not now graduate more than one-half of the number that annually, adorned with the parchment, formerly went forth from their doors.

In June, 1880, a committee was appointed by the board for the purpose of obtaining from the colleges themselves information upon which to base a more intelligent and comprehensive schedule of minimum requirements for practice in the State of Illi-

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nois. The board desired to know what the colleges taught, how long their lecture terms continued, the number of teachers, the conditions upon which students were admitted, and the requirements for graduation, and the proportion of graduates to matriculates. The responses to these inquiries constituted the substance of the report which was made to the board in 1883, and which, much elaborated and enriched by subsequent information, has passed into our historical literature. I have not quoted the questions but have stated the substance of them. The board adopted a schedule, which went into effect in 1884, and at the risk of wearying you I venture to include it in this paper.

I. CONDITIONS OF ADMISSION TO LECTURE COURSES.

1. Credible certificate of good moral standing. 2. Diploma of graduation from a good literary and scientific college or high school—a first grade teacher's certificate. Lacking this, a thorough examination in the branches of a good English education, including mathematics, English composition, and elementary physics and natural philosophy.

II. BRANCHES OF MEDICAL SCIENCE TO BE INCLUDED IN THE COURSE OF INSTRUCTION.

1. Anatomy. 2. Physiology. 3. Chemistry. 4. Materia medica and therapeutics. 5. Theory and practice of medicine. 6. Pathology. 7. Surgery. 8. Obstetrics and gynæcology. 9. Hygiene. 10. Medical jurisprudence.

III. LENGTH OF REGULAR GRADUATING COURSES.

1. The time occupied in the regular courses or session from which students are graduated shall not be less than five months, or twenty weeks, each. 2. Two full courses of lectures, not within one and the same year of time, shall be required for graduation with the degree of doctor of medicine.

IV. ATTENDANCE AND EXAMINATION, OR QUIZZES.

1. Regular attendance during the entire lecture course shall be required, allowance only being made for absences occasioned by the student's sickness, such absences not to exceed 20 per centum of the course. 2. Regular examinations, or quizzes, to be made by each lecturer or professor daily, or at least twice each week. 3. Final examinations on all branches, to be conducted, when practicable, by competent examiners other than the professor in each branch.

V. DISSECTIONS, CLINICS, AND HOSPITAL ATTENDANCE.

1. Each student shall have dissected during two courses. 2. Attendance during at least two terms of clinical and hospital instruction shall be required.

VI. TIME OF PROFESSIONAL STUDIES.

This shall not be less than three full years before graduation, including the time spent with a preceptor and attendance upon lectures or at clinics and hospital.

VII. INSTRUCTION.

The college must show that it has a sufficient and competent corps of instructors, and the necessary facilities for teaching, dissections, clinics, etc.

Such were the standards established, which went into effect in 1884. The graduates of schools which did not come up to these standards could not practice medicine in the State without first undergoing an examination by the board.

The statistics which have accumulated since the adoption of this schedule go to show that it has had a most important influence upon the methods and thoroughness of teaching. Previous to this time the American Medical Association and other medical societies had passed resolutions and recommendations looking to a higher standard of medical education, but there had been almost nothing accomplished outside of two or three of the leading cities. Students continued to go to those colleges

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which furnished them the degree with the least amount of study and money. In many instances they believed that they could make up afterward for the deficiencies of the undergraduate course, but in fact, with few exceptions, they never did.

The colleges themselves saw no reason to do what the profession did not encourage, did not even support. It is true that there were a few exceptions to this statement. In 1859 the Chicago Medical College was organized, with a graded course and a lecture term much longer than usually existed at that time. For twelve years this college was the only one in the United States with a graded course. Harvard, and subsequently the University of Pennsylvania and a few other institutions also adopted graded courses and longer terms; but at the time of the passage of the Illinois medical-practice act there had been but little advance either in the direction of a more systematic arrangement of studies or in the breadth and length of the curricula. When it was first suggested that legislation could do something to raise the standard of qualification, there were but few who believed that anything substantial could be accomplished. It was urged that the colleges were independent of legislation, and that in this free country anyone who desired to practice medicine ought to have the privilege or right to do so. The host of quacks cried "persecution," but the practical working of the law soon convinced the most skeptical that there was something being done. Many of the incompetent were driven into neighboring States, and as a result, laws similar to that of Illinois have been passed by these States in self-defense.

The last quarterly report of the secretary states that there are now 114 colleges in the United States which require evidence of some preliminary study as a condition of admission. Before the establishment of the schedule of the board, or in 1883, there were only 45. Forty-three colleges now exact attendance upon three courses of lectures as compared with 22 in 1883, and 57 others have made provision for a course of three or four years, and recommend it although they do not exact it. Hygiene is now taught in 114 colleges. In 1883 it was taught in only 42. Medical jurisprudence is now taught in 112 schools. In 1883 it was taught in 61. The lecture term has been increased, and 114 colleges now have terms of five months or more, and 61 have terms of six months or more. At the time the schedule went into effect there were 101 with five months and 42 with terms of six months.

In the meantime, institutions which have either not made any provision for instruction in some of the subjects required, or which do not exact evidence of preliminary attainments, are obliged to advertise that such of their graduates as intend to settle in Illinois may present the evidence of preliminary study and the college will certify that fact; they may also obtain instruction in the deficient branches, and this, it is thought, may save them from the humiliation of an examination by the board. As a matter of fact, it has become evident that the non-professional as well as the professional public has awakened to the importance of a more extended and a more prolonged course of study. Those colleges which make provision for this are beginning to be looked upon with more favor. They have a larger number of students of the better class, and their graduates take a higher position in the communities in which they establish themselves. All this can be verified by the facts accumulated in the reports of the board.

Of course, we do not mean to claim that all the advance of the last few years has been the direct outcome of the Illinios law. Other States have similar enactments, but it is our purpose only to speak of this State as a pioneer in this work. As we suggested at the commencement of this paper, the awakened public thought upon kindred subjects made this change a possibility. It is quite probable that the results reached would, in the absence of this public enlighten-

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ment, have been impossible a few years earlier. All that is claimed for the Illinois law is that it has been the most important factor in compelling, on the part of the colleges, a reform in their methods and means of instruction. This has been accomplished by making it impossible for the graduates of the inferior schools to practice in the State. In other words, a factory turning out inferior goods gets a bad name, and the goods do not readily find a market.

As will be seen by those who will follow the work of the board, there is a new advance to be made after the close of the session of 1890–91. At the meeting of the board in July, 1887, a resolution was adopted defining the phrase "Medical colleges in good standing" to mean "only those colleges which shall, after the sessions of 1890-91, require four years of professional study, including any time spent with a preceptor, and three regular courses of lectures, as conditions of graduation, and shall otherwise conform to the schedule of minimum requirements heretofore adopted by the board."

Information has been received that a number of schools heretofore requiring but two courses will hereafter require three courses, and there is reason to believe that there will be a very general adjustment of the breadth and length of the courses in all of the better schools so as to meet the demands of the Illinois regulations. In fact, I learn from the secretary that about one-half of the schools have already signified their intention to qualify their graduates to practice in the Prairie State.

In closing, I beg to suggest that much of the efficiency of the Illinois medical-practice act has, as it seems to me, been the outcome of a condition of things which was, when the act went into effect, a subject of criticism. I allude to the fact that the board was what is called a "mixed" body. That it was not made up of the so-called "regulars" alone, but there were among its members a homœopath, an eclectic, and two laymen. It was thought that nothing good could come out of Nazareth, and that the dignity of the profession was compromised by the association of its members with irregulars.

What was feared might be a misfortune has been in fact one principal cause of its efficiency. Instead of the irregulars increasing under the fostering care of the mixed board, they are falling off. This is, however, not the case in Illinois alone, but it is a general fact.

Upon the whole, we may well congratulate the profession of medicine in this year 1888. The numbers who gain access to our ranks are, it is true, not so numerous in proportion to the population, but they are better qualified, and there are, therefore, not so many inferior men to struggle for existence. The percentage of graduates to students is lower, which means a higher standard of attainments.

In response to a more intelligent, and, therefore, a higher estimate of the profession by the public, schools of all kinds, the so-called irregulars as well as the regulars, are spending less time upon theories and speculations, always incidental to scientific progress, and are devoting more time and effort in the endeavor to equip their graduates with a better knowledge of the established truths of medicine, a greater familiarity with the natural history of disease, and a higher skill in the use of the agents and processes by which suffering is relieved and life prolonged.

4 SIXTEENTH STREET.

REPORT OF A CASE OF GASTROSTOMY.

BY BAYARD HOLMES, M. D.

Synopsis: Carcinoma (?) of the lower pharynx and upper end of the œsophagus. Advancing stricture of the œsophagus for eight months. Inability to swallow solid food for five months. Dilatation for two months. Inability to swallow liquids for three days. Gastrostomy in two tempos, with an interim of twenty-four hours. No autopsy. Examination of the parts after death showed complete union of the stomach and abdominal wall.

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Mr. Reels, 62 years old, a butcher, born in New York, of excellent family history. Father died at 95, mother at 76, years. No consumption in the family. Has two healthy grown-up sons; has always been a well, strong man, and able to carry on his occupation as a butcher without interruption; has had but a single illness. Fifteen years ago, while lifting a barrel of apples into a wagon, he had a copious hæmorrhage from the mouth which greatly weakened him for a few days. Does not know where the blood entered the mouth; had no cough at the time, nor afterward. His usual weight, until six months ago, was between 175 and 200 pounds. Always was a good feeder. Drank only occasionally, and then in small quantities and never to excess.

His present sickness began in December, 1887, with sore throat. This continued uninterruptedly until the last of February, 1888, when it was accompanied by hoarseness, and, later, by aphonia. These symptoms disappeared in two weeks, and an advancing dysphagia took their place. Early in March, he consulted for the first time several physicians, among them, Dr. Mark Lackersteen, who informs me that, after careful examination, he diagnosticated an inflammation of the pharynx, and prescribed some astringent local application. It seems that at that time the neoplasm must have been of very limited extent. By the middle of May, the difficulty in swallowing had so far advanced that that no solid food could be taken, and the patient began to complain of hunger. Rapid loss of strength and weight was noticed. In the early part of July it became necessary to occasionally pass sounds through the stricture, in order that even liquids could be taken. There was never any vomiting or dyspnœa. During sleep there was a little more snoring than usual, but no more than could be referred to loss of strength. The emaciation rapidly advanced during the last two months, until the patient's estimated weight was eighty pounds. The cachexia, though slight, was noticeable. Hunger was always a prominent symptom, and thirst appeared during the last two weeks, as the supply of liquids became limited. Disappointing dreams of feasts aggravated him even in his sleep. At last it became impossible to pass even the smallest sounds. Feeding through a tube was never practiced. There was no very offensive odor from the mouth, nor were there eructations or other disturbances frequently noticed in stricture of the œsophagus.

Dr. Gay Dorn saw the case first on September 13, and I was called in by him on the following day. The patient was extremely emaciated. The skin was dry, and hung on the bones so as to make a remarkable impression on the beholder. It seemed that every trace of adipose tissue was gone, leaving the fossæ of the head exposed. The extremities seemed bloodless, and his pulse was very weak. His voice was not strong, though it would not attract attention from its loss of volume. There was no hoarseness. Weakness was considerable, but not so great as to prevent sitting and walking, as from his bed to a chair. There was a tumor—three inches in diameter—at the beginning of the œsophagus, which seemed attached to the larynx and trachea in front, and moved with movements of these parts. The extreme emaciation favored examination. There were no enlarged lymphatics to be found by palpation. Repeated attempts were made to pass even very small catheters and urethral sounds through the stricture, but in vain. In these attempts the patient was able to offer every assistance, and allowed the guiding finger in the pharynx. This seemed in every way equal to an examination under an anæsthetic, and much safer. The outlet of the pharynx was found closed with a firm ragged mass, which seemed to rise as high as the epiglottis. The slightest touch caused bleeding, which soon stopped. The patient

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said he was suffering intolerable thirst and great hunger, and asked that a hole be made in his throat so that he could take water. His mouth was dry all the time, and he was troubled occasionally by a muco-purulent discharge which caused coughing, if not removed. Enemas were no longer retained.

Œsophagotomy was not thought advisable, because it is a less tried and more complicate operation, though this was a very favorable case on account of the height of the stricture. Gastrostomy was proposed, and readily accepted by the patient and by the family.

The operation was performed in the patient's residence after considerable attention as to cleanliness. Strict antiseptic precautions were used in the operation. Ether was used as the anæsthetic, though I should prefer chloroform.

Beside Dr. Dorn's, I had the assistance of Drs. Randall, Coe, and Hanna. Beginning directly under the attachment of the cartilage of the eighth with that of the seventh rib, an incision was made upward and inward parallel with the margin of the left costal cartilages and about an inch from them, for an inch and a half. The skin and muscle were divided without discovering any fat. All hæmorrhage was stopped without ligatures. A dense fascia was then carefully divided in the bottom of the wound, and a small opening made in the peritoneum. The abdominal walls were so retracted that a large quantity of air began to rush in. This was first filtered by covering the opening for a moment with a sponge of carbolized gauze. The peritoneal opening was then made continuous with that of the skin, and two fingers introduced to bring up the stomach. I was prepared to find some difficulty in this, but I encountered much more than I had anticipated. The transverse colon lay in the incision. Pushing this down, I felt for the lower border of the liver and the duodenum. These were easily found. Following the gut along toward the stomach, I soon found myself lost on the posterior wall of the abdomen or on the diaphragm. This was repeated several times. At last I enlarged the opening in the same direction toward the right, and succeeded in bringing up what seemed to be the pyloric end of the stomach. The stomach was so much atrophied that it was scarcely four inches long. When, by the coronal artery and the omentum, I had identified the part as the greater curvature and dragged it out toward the left as far as it could be attached to my incision without too much tension, I had an assistant hold up the stomach with a tenaculum forceps and his fingers until I had united again about an inch and a half of the peritoneum and fascia on the left of my incision. Then by means of a silk suture; which did not penetrate the mucous coat of the stomach, I attached to the left angle of the remaining opening a part of the stomach about three-quarters of an inch from the coronal artery and the same distance from the gastro-epiploica. The whole lower edge of the incision was attached to the stomach in the same manner by interrupted sutures. Then, the stomach having been drawn up and out of the incision with a tenaculum forceps and the fingers, the upper edge of the incision was attached to the stomach about half an inch at the farthest from the lower line of sutures. The whole peritoneal edge was then felled down with a fine continuous silk suture. When all was done, an elliptical portion of the anterior wall of the stomach about an inch by half an inch was to be seen, held in place by twenty strong, interrupted sutures. No guides were left for the incision into the stomach. After the muscle and skin at the left angle of the wound were closed over the united peritoneum with a few sutures, the remaining cavity over the stomach was packed with iodoform gauze and dressed.

The patient stood the operation well. It lasted an hour and a quarter. On the following day, with a little anæsthetic, an opening was made into the stomach, the mucous membrane drawn out and stitched

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to the edge of the wound, and a tube eight millimeters in diameter introduced, through which he was fed. The wound was perfectly agglutinated, and neither suppurated nor caused any pain. Only twice did a fit of coughing cause displacement of the tube and leaking. The capacity of the stomach, which at the beginning was only about four ounces, increased rapidly, until nearly a quart was necessary to satisfy the patient. Such quantities as the capacity of the stomach would admit were given at intervals of two hours, and consisted of milk punches, egg nogg, beef tea, and a liberal quantity of champagne and other stimulants.

In spite of the fact that the patient had great relief and satisfaction from feeding, and called for food and drink as he felt the need of it, experiencing no indigestion, he gradually lost strength, and died at the end of the fifth day. On the fourth day, when the displaced tube was again introduced, the wound was found completely united. After the operation he never complained of any pain or uneasiness that could be referred to peritonitis. The bowels moved regularly after feeding began, except on the last day, when there was diarrhœa. The urine passed voluntarily until the last day, when there was retention, and a catheter was used.

The urine was never examined for albumen, which, I have since learned, appears in starvation. The temperature and pulse record, which was kept by Dr. Dorn, are given:

DATE.	PULSE.	TEMPERATURE.
September 14, 3.00 p.m..	80	98 2-5 Fahr.
" 15, 3.30 p.m..	75	98 2-5 "
" 15, 6.30 p.m..	108	100 2-5 "
" 16, 9.00 a.m..	100	99½ "
" 16, p.m.....	96	99 "
" 17, a.m.....	96	98 3-5 "
" 17, p.m.....	110	99 "
" 18, a.m.....	108	98¼ "
" 18, p.m.....	120	98 3-5 "
" 19, a.m.....	120	99 "

125 State Street.

GRAFTING OF SKIN TAKEN FROM FOWLS, WITH REPORT OF A CASE.

BY B. F. ROGERS, M. D.,
Passed Assistant Surgeon, United States Navy.

David Williams, 2d C. F., æt. 38, native of Wales, color, white, presented himself at sick-bay for treatment on board the *Alliance*, South Atlantic station, on the evening of April 15, 1888. He said he had injured his "seat."

On examining the patient I found a patch of skin on the left buttock gangrenous. This was about six by four inches in area, surface dry, hard, black in color, as if covered with a coating of coal tar, void of sensation, and emiited a putrid odor from its sloughing margins where separation from the inflamed surrounding parts was in progress. As to the origin or cause of this state of affairs he claimed to know nothing. He was under the influence of alcoholic stimulants, indulged in for two days previous to his presenting himself for treatment. During the time mentioned he was running the engines of the steam cutter.

From others in the cutter with him I learned that he probably sat in a pan containing a solution of caustic potash. This occurred the first day of his tour of duty in the cutter, and rather than forego the opportunity to indulge his thirst for rum he bore the pain and discomfort his wound occasioned him. The patient was bathed, placed in a cot, and the wound dressed with a moist, carbolated dressing. By May 1 the slough was completely removed, leaving the substance of the gluteal muscles bare for a space indicated above. The dressing now employed was cosmoline, oiled-silk protection, and a moist carbolated compress over all.

Skin-grafting was done from May 4, the supply being taken from the patient's arms. The abundant discharges from the granulating surface, the difficulty of retaining

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the grafts in place, and the injury the patient unwittingly did to the wound at night while asleep by lying on it, rendered most of this work useless. May 8, grafts taken from under the wing of a young fowl, as recommended by Dr. Redard, mentioned in *Medical Record* of March 10, 1888, were placed on the granulations, and thereafter repeated as occasion required.

June 9, the surface had healed over, leaving only a space of one by one and a half inches open. On this date the patient was transferred to the British hospital at Montevideo, owing to the sailing of the ship for Punta Arenas, Chili. The condition of the patient rendered it advisable to do this. He proved a refractory patient, defied the hospital authorities, jumped the wall, and went on a continuous spree. Under these circumstances it is not to be wondered at that when the ship returned to Montevideo August 10, and received Williams on board again, his wound was in much the same condition as when I last saw him. Carbolated water dressings were again applied to reduce inflammation, and in a few days skin-grafting was resumed, fowls furnishing the supply, as before. September 14, the patient was discharged to duty.

The wound was then healed. The cicatrix is soft and pliable, and though the wound is much reduced in size by contraction, there is little of the character of a cicatrix following a deep and extensive burn about it.

EDITORIAL.

PTOMAÏNES AND THEIR EFFECTS.

Ptomaïnes, as is well known, are chemical compounds, the result of putrefaction; but putrefaction comes from the growth of micro-organisms alone. Ptomaïnes are, therefore, formed in no other way than by the growth of such bodies. Their number must be great, greater perhaps than the sorts of germs; for it is not at all unlikely that the same germ in different conditions may produce different ptomaïnes. Already more than forty have been discovered, and their composition determined. Early in their history some of them were found to be highly poisonous, some resembled in their reactions known drugs. Chemists of ability had confounded them with strychnia, morphia, and the like. They were, therefore, from the first, thought to be objects of considerable interest.

The readers of this journal will remember that sometime ago* mention was made of the fact that Brieger had discovered several of these substances in pure cultures of organisms found in tetanus. All of them were highly irritating to the nervous system; with one of them he had produced tetanus.

Tetanus, then, according to him, is caused by bacteria in a secondary way, the bacterium forming the ptomaïne and the ptomaïne producing the symptoms, just as yeast makes alcohol and alcohol causes intoxication.

This discovery added greatly to the interest of these substances. They were now removed from the group of bodies interesting to the chemist and toxicologist alone; they became of importance to the pathologist and practical physician.

Recently, the investigation has been extended. Brieger has found a ptomaïne in cultures of the typhoid bacillus, which causes typhoid symptoms, with ulceration of the agminated glands.

A ptomaïne has been found in cultures of the anthrax bacillus which causes symptoms like those from inoculations of the bacillus itself. There is evidence to show that the cholera bacillus produces a substance highly irritating to the intestinal canal, although the bacilli probably act mechanically also.

An explanation of the way the ptomaïnes act, in some cases, at least, has been given

* August, 1887.

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by Oertel in an elaborate work on diphtheria just published.

According to him the ptomaïne penetrates the epithelium, is taken up by the wandering white blood corpuscles, and carried to all parts of the body. In their course, these corpuscles are more or less completely destroyed; the blood vessels are injured, and results of the action of the poison are seen, especially, in the kidneys, spleen, and nervous centres. The ptomaïne dissolves first the cell-wall and then the cell itself. By a sort of catalyses, it is reproduced out of the ruins of the destroyed tissues, and the diseased activity continues although the germ from which it originated is destroyed.

It is not at all unlikely that infectious diseases, as a class, have a similar history.

Röhmann, in a recent number of the *Berliner Klinische Wochenschrift*,† makes it, at least, likely that something of this kind occurs in acute atrophy of the liver.

The continuous symptoms in some cases of ptomaïne poisoning, in which articles containing the poison have been cooked and the germ, therefore, destroyed, are probably to be experienced in this way.

The field opened up to us by these studies, as well as that of the analogous leucomaïnes, promises rich results in many ways and is an inviting one for investigators.

† Nos. 43, 44.

USEFUL MEMORIALS.

Hospital endowments have long been a favorite form of memorial, and, when properly conducted, have served a most useful purpose, for such hospitals constitute a very practical charity. Within the last few years, New York City has been especially favored in this way.

The growth within recent years of training-schools for nurses has led to such improvement in nursing, and the advantages of it have been so marked and so much appreciated, both by the medical profession and the public, that encouragement is properly being given to increase the number of such schools, and to extend the field of usefulness of their graduates. This work not only renders the advantages of hospitals greater, by increasing their efficiency, but its beneficial effect is manifest outside of them. Most of the training-schools established in this country have been organized for the education of women for the duties of a nurse, but recently a school has been endowed in New York for the education of men, recognizing the fact that there are cases in which men are better adapted for some special duties in nursing, and that they should have an opportunity to properly qualify themselves for that work.

Another philanthropic gentleman has just completed a memorial training-school, called *The Henry W. Bishop, 3d, Memorial Training School for Nurses*, at Pittsfield, Massachusetts. It was built by Henry W. Bishop, of Chicago, as a useful memorial of his son, and in evidence of his appreciation of the value of the services rendered by trained nurses to his son during his fatal illness at Pittsfield, and, also, with a desire to aid in extending the widening field of usefulness of trained nurses. Such memorials are practical, benevolent, and worthy of commendation.

SOCIETY REPORTS.

CHICAGO PATHOLOGICAL SOCIETY.

Stated meeting, November 12, first vice-president, John D. Skeer, M. D., in the chair.

The committee, composed of Drs. A. E. Hoadley, C. D. Wescott, and L. B. Hayman, appointed to report upon Professor Danforth's case of gallstones, submitted the following: With the meagre material at our disposal, from which we were expected to report on the etiology, pathology, and rational treatment of the patient, we found ourselves in the position of the naturalist

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who attempts to define the character and habits of an extinct animal by studying one of his fossil bones. The pathological specimen submitted for our inspection consisted of a gall bladder, right and left hepatic ducts, a small portion of the common bile-duct, and a small portion of liver from the left and right lobes.

On examination we found the following conditions :

1. The portion of the common duct attached to the specimen was about two inches in length, somewhat bound down, and firmly adherent to its peritoneal covering. There was an evident increase of the connective tissue, which was firm and inelastic. The lumen of the tube would readily admit the index finger. The walls were thick, firm, and smooth, calibre uniform, and no pouches to indicate that it had ever been occupied by stones.

2. The gall bladder was about one-fourth the normal size and almost completely buried in liver tissue by the contractions of old inflammatory adhesions. Its cavity was occupied by three large biliary calculi. The duct of the gall bladder was enlarged, firmly adherent to the peritoneum and liver tissue, and communicated freely with the common duct.

3. The right hepatic duct was enlarged, the walls thickened; the first branches were also dilated and thickened, but no evidence of rupture within the liver tissue. It freely communicated with the common duct.

4. The left hepatic duct, with its branches, was very much dilated and thickened. The branches, two or more, had ruptured within the substance of the left lobe of the liver. The laceration of the liver substance extended to the peritoneum and its under surface.

The foregoing morbid changes, excepting the laceration, appear to have existed for a long time, and, taken together with the fact that some seven or eight years ago the patient suffered an acute attack, we conclude that the trouble must date from that time and progressed in the following manner as near as we can judge from the history of the case. We know that there was an obstruction to the common duct at or near the duodenum. As there was no evidence of obstruction in that part of the tube still attached to the specimen, we conclude that the stenosis was the result of an inflammation, and that the inflammation commenced at or near the seat of stricture, extended to the peritoneum, producing a localized peritonitis involving the visceral layer in the region from which the specimen was taken and resolution was established. How much more extensive the inflammation was we can not say. We conclude, however, that this inflammation occurred as the primary trouble seven or eight years ago. Since the occurrence of this inflammation the patient had not been well. She suffered repeated attacks of pain, nausea, and jaundice, with all the symptoms attendant upon an obstruction to the flow of bile. But it was not until the commencement of the present year that the obstruction was made complete, whether by the gradual contraction of the products of a previous inflammation, or by a recent inflammation, or the lodgment of a calculus, can not be known. After the complete closure of the common duct the accumulated bile was not provided for in the usual way, by the rapid distention of the gall bladder, as this viscus was bound by inflammatory adhesions, and the tubes previously thickened would not yield. The absorption and elimination by the kidneys was not sufficient to relieve the tension. Finally, the liver itself began to yield in the substance of the left lobe. There was a laceration that reached the under surface against the peitoneum. Here a bile-cyst was formed, which protruded from beneath the left lobe and in contact with the anterior abdominal wall, where it became adherent. It was tense, painful, and exquisitely sensitive. The patient's condition was one of *extremis*.

It was at this time that Professor Danforth first saw the case. Under the circum-

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stances he made a diagnosis. He recognized that the contents of this tumor were fluid, and that the fluid was bile, and that there were also present gallstones. This remarkable diagnosis was verified by the operation. The operation was incomplete. To have completed the operation would have been to restore the continuity of the lumen of the common bile-duct with that of the intestine, directly or indirectly, by making an artificial opening between the gall bladder and an available loop of intestine lower down. The time for completing the operation, however, never came; the patient could not rally. From the careful study of the very perfect record of the case subsequent to the operation, your committee is of the opinion that nothing could have been done that was not. But prior to the operation, from January, 1888, when Dr. C. M. Weems, of Baylis, Illinois, diagnosed obstruction to the flow of bile, the case was ripe for operation. The idea that it was malignant had taken possession of the attending surgeons, and the operation was delayed so long that it was never finished. The history of this one case is sufficient to justify an exploratory incision in all similar cases where there is any doubt.

As far as the literature is concerned, cases of this kind are rare. Dr. H. M. Biggs (*The Medical Record*, November 10, 1888) presented a specimen of multiple gallstones in the liver to the New York Pathological Society, removed from the body of a man who had died in Bellevue Hospital. No history of the case had been obtainable. At the autopsy were found evidences of extensive fibro-serous peritonitis; there were also pleural adhesions and acute pericarditis. All through the liver the smaller bile-ducts were dilated, some forming cysts of considerable size and containing gallstones. Small abscesses had formed on the upper surface of the liver, and there were adhesions between this viscus and the diaphragm. There was one abscess in the left lobe, three centimetres in diameter, which, like the cysts, contained gallstones. There was also a smaller abscess in the right lobe. From one of these abscesses the inflammatory process had extended into the pericardium, and from the other into the pleural cavity. The gall bladder contained no calculi and the larger ducts were also free from them.

Professor C. W. EARLE said he was called in consultation with Dr. Denslow Lewis, two or three months ago, to see a case of gallstones. The patient, a lady, had suffered from several attacks of jaundice from time to time, and on admission into the Cook County Hospital was greatly emaciated. Dr. Lewis, deeming an operation justifiable, made the usual incisions and removed 183 gallstones, by absolute count, most of them being about the size of a small pea, and three about the size of the tip of the little finger. The patient remained in the hospital a month after the operation, and was discharged, having made an excellent recovery.

Professor MARIE J. MERGLER read a paper, entitled "Report of a Case of Placenta Prævia Marginata."

During the winter of 1887–8, Mrs. O—— engaged me for her confinement, which was expected about July 1.

Physical Condition.—Brunette, æt. 39, very pale, medium stature, weight about 140, lower extremities somewhat œdematous, quite varicose. Appetite fair; bowels inclined to constipation; urine normal.

Nervous Condition.—More excitable than normal.

The patient had felt an unusual solicitude about her condition. She had recently attended her mother's funeral, and had subsequently dreamt that she would die during confinement. Being naturally somewhat superstitious, she attached great importance to this dream, and looked upon it as a very bad omen.

Her previous labors (9) had been normal, but unusually rapid. May 17, she awoke in the night and found that a severe uterine hæmorrhage had taken place,

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which, however, soon ceased spontaneously. Early the next morning I was called in. I found her looking very pale, and feeling much exhausted. She stated that the hæmorrhage came on without uterine pain or perceptible contractions, but that on the day previous she had had little more backache than usual.

On examination the cervix presented an uneven surface, like that of a mass of corrugated vessels. This soft body extended beyond the os on all sides, and no presenting part could be distinguished. The internal os was closed. I made the diagnosis *placenta prævia centralis*. She had slight attacks of syncope, for which I lowered the head and ordered half-ounce doses of wine. There was but slight hæmorrhage. I washed the vagina with carbolized water and packed it with strips of iodoform gauze, and advised the family to adopt every means of securing perfect mental quietude for the patient, at the same time charging them to notify me of the first indication of hæmorrhage or pain. On the second day the packing was removed. There had been neither hæmorrhage nor pain. She kept her bed for a week, when another hæmorrhage occurred. This time, the internal os was opened sufficiently to admit the index finger. The presenting head could be distinctly felt, with no placental structure interfering, except on the right side where the edge of the placenta presented.

Diagnosis was now changed to *placenta prævia marginalis*. As she was continually threatened with attacks of fainting, I advised immediate delivery, but requested to have a consultant in the case. To this the husband consented, and I called in Professor Earle, who, on examining the patient, concurred in the diagnosis, and also advised immediate delivery.

The vagina was packed with iodoform gauze for twenty-four hours. On removal of this there was but slight hæmorrhage. The os was but little dilated and rigid, and no presenting part could be distinctly felt. At 8 p. m., I removed the packing and remained with the patient. She slept during the greater part of the night until 2 a. m., when she felt strong contractions. There was slight hæmorrhage.

On removal of the packing the os was found well dilated and the head could again be felt, but was easily displaced. I sent for Professor Earle, but as hæmorrhage increased and the head would not engage, I at once ruptured the membranes and brought down the foot, which was easily accomplished, on account of the great amount of amniotic fluid and great mobility of the fœtus. The hæmorrhage ceased and the patient had fair pains. On Professor Earle's arrival, the expulsion was much assisted by firm pressure upon the fundus. Labor was completed in about three-quarters of an hour. The placenta was slightly adherent and easily removed. No anæsthetic was used. The fœtus, which was poorly developed, expired soon after birth. She lost but little more blood than in an ordinary labor, but considerable stimulation was required to ward off the attacks of fainting. After the administration of an intrauterine bichloride douche, the uterus contracted firmly. During convalescence the excessive anæmia was the only alarming symptom. The uterus remained well contracted; temperature, 98½° and 99° Fahr., except on the third day, when her breasts were quite painful, the temperature rising to 100°. On the following day and thereafter it was normal. She regained her usual degree of health in six weeks.

Professor H. M. LYMAN had had two or three cases during the last twenty-five years. When hæmorrhage comes on it is his rule to deliver as speedily as possible, his aim always being to protect the mother without regard to the consequences to the child. The salvation of the mother is a thing of prime importance.

Dr. A. B. STRONG had only met with one case in his practice in which he got the afterbirth away first. There was pro-

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fuse bleeding before delivery, but as soon as the placenta had been removed the hæmorrhage ceased.

Dr. C. D. WESCOTT: A thought has occurred to me as to rupturing through a placenta attached centrally. I would like to ask: Can we do that and deliver with safety to the child? I have met with but one case of placenta prævia, and in that there had been three quite copious hæmorrhages before labor commenced, and the case convinced me that if ever I see any more, and I hope I shall not, I shall induce labor at once, if the family and my consultant will consent. The case that I refer to was one of marginal attachment, with laceration of the border of the placenta. The placenta was quite firmly adherent. I tried to detach the margin to stop the hæmorrhage, and succeeded partially, but I could demonstrate by the touch that most of the hæmorrhage came from the tear in the edge of the placenta. I could not determine positively whether the child was alive or not at the beginning of labor, for I had no stethoscope; it was certainly not alive when labor was completed. I introduced my hand, as soon as dilatation had advanced far enough to permit it, and had no difficulty in bringing down one of the legs through the os uteri in the manner described by Dr. Earle. Having no evidence that the child was alive, I did not hasten delivery, consequently an hour or more was consumed in the operation. The child had the appearance of being exsanguinated, and, though efforts at resucitation were made, no sign of life was manifested. The placenta was removed with some difficulty, but the mother made a good recovery.

Professor A. E. HOADLEY: The remarks of the previous speakers have induced me to say a word on this paper, and I desire in the first place to commend the position taken in the case. I hold that we are perfectly justified in inducing early labor in these cases. But there is one point that occurs to me that has not been touched upon by Professor Earle, and that is, with regard to the child's condition. In placenta prævia it is not only the mother that bleeds, but the child also. We know that the young infant at birth can not tolerate the loss of blood well. If there have been two or three hæmorrhages, for example, and, as a consequence, a certain degree of anæmia of the mother, there should be, and usually is, an alarming condition of the infant. I have had three cases of placenta prævia, and all the babies were born alive, but died soon after birth. One of these cases had had only a second hæmorrhage. The first hæmorrhage stopped spontaneously, and with good care the mother went to nearly full term. The child was delivered alive, but soon expired.

Where placenta prævia is made out to be the cause of hæmorrhage, both mother and child are losing blood, and I think immediate delivery is justifiable.

A CASE OF CHYLURIA.—Professor HOADLEY reported a case of chyluria, and said: I have here a sample of urine which came from a chyluric patient. In addition to the normal ingredients, it has about 1 per centum of fat in emulsion. Chyluria occurs in two forms, first, the sporadic, and, second, a form of chyluria that is dependent upon a worm that infests the human blood, and is prevalent in the tropical regions, called *filaria sanguinis*. I have examined this patient for filariæ, but have found none, and must regard it as a case of sporadic chyluria. The patient is a young man twenty-two years of age, of excellent habits, and enjoys good health. He has no symptoms that could lead us to believe that there was any organic change anywhere. Examination of the urine by the microscope furnishes no evidence. He passes clear urine in the evening. During the middle of the day he will pass many coagula that are sometimes translucent, and at other times milky white.

The pathology of these sporadic cases is unknown. There are several theories. One is, that there are communications existing between the lympathic system and

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the urinary system somewhere; that the lymphatic vessels dilate until they reach some of the lymphatic vessels that communicate with the substance of the kidney. and in this way let fat infiltrate into the kidney. Chemical analysis shows that that could not be the case, inasmuch as in normal chyle there is more fat, and there are other elements that are not found in this chylous urine. I have an idea that it is a fault in digestion, not alimentary digestion, but the digestion that takes place somewhere between the time that the chyle containing emulsified fat is poured into the blood, and where the blood comes to nourish the tissues. A change takes place in the blood after the chyle is poured into the venous circulation that converts the fat into its primitive elements. How that particular process is formed I am not prepared to say, but it is arrested and the fat is eliminated by the kidneys.

Chyluria can be artificially produced by injecting oil into the blood; the kidneys will eliminate it.

The remedies I have given have had no effect. I have given ergot, atropine, strychnine separately and thoroughly without any beneficial results. The only abnormality is the presence of fat.

Professor LYMAN asked whether the patient had been examined at different times of the day and night.

Professor HOADLEY: Filaria are never found in the blood except at night. I have examined the patient at night four different times without being successful in finding them; also examined him in the day time.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF CHICAGO.

The regular meeting was held September 28, 1888, the President, Henry T. Byford, M. D, in the chair.

RECENT MODIFICATIONS OF BOZEMAN'S UTERINE CATHETER.

Professor W. W. JAGGARD said that it was difficult to clean and sterilize many of the double-current tubes commonly used for the purpose of intra-uterine irrigation. He begged to call attention to three models of Bozeman's uterine catheter as variously altered, in important particulars, respectively by Breisky, Breuss, and Piskacêk. Bruess' instrument resembled the modification by Chrobak and Fritsch, but permitted the use of a much smaller uterine tube—four millimetres in diameter—of obvious advantage in the irrigation of the non-gravid uterus after curettement. Although the uterine tube can be removed from the conduit-pipe, this instrument requires care in cleaning. Piskacêk's model is an almost perfect instrument. It has been in the shops for some time, and has answered the purposes for which it was designed. This catheter is identical in principle, and nearly so in detail, with the "Asceptic Two-way Uterine Catheter" exhibited by Dr. H. A. Kelly to the Obstetrical Society of Philadelphia, March 1, 1888. A cut of the instrument shown by Dr. Kelly, appearing in the July number of the *American Journal of Obstetrics*, etc., may serve to illustrate Piskacêk's device.

SELF-RETAINING DRAINAGE-TUBES FOR PELVIC ABSCESSES OPENING INTO THE RECTUM.

The PRESIDENT said: I wish to exhibit some self-retaining drainage-tubes that I devised for draining pelvic abscesses discharging into the rectum. One of these was successfully used in the cure of an abscess that I opened from the rectum. I used another successfully in a double uterus with a single cervix, in which the retained blood on one side had to be excavated a little in front of and to the right of the os. It was used until the pocket formed by the previous distention (hematometra), and that extended below its outlet at the internal os, had become obliterated by slow contraction. I am now using one to drain the urine from an inflamed bladder. They are curved so that the concave side represents in profile a

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semicircle, the convex side an arc of about ninety degrees. They are made of silver, or of nikel-plated metal.

PEDICLE-FORCEPS FOR VAGINAL OÖPHORECTOMY.

I have here also a pedicle-forceps, to be used in vaginal oöphorectomy. I always use ligatures when practicable, but in an operation for a small adherent dermoid, at which I assisted Dr. Newman, neither of us could apply a ligature satisfactorily. I lent him an instrument similar to this perfected one, that he left on the pedicle for two days with good results. Both ends are bent in opposite directions.

The perfected forceps has been since used in a case of vaginal ovariotomy with good results.

MODIFICATION OF SIMS' NEEDLE-FORCEPS.

Here is a new needle-forceps, or rather a modification of the Sims' pattern. They are made so as to grasp full curved needles as well as straight ones; they have an extension on the end to enable the operator to use the force of the whole hand, while the thumb and two first fingers guide the motions of the forceps just as with Sims' instrument.

PAPILLOMA OF THE BROAD LIGAMENT INFILTRATED WITH TUBERCULOUS FOCI.

Dr. McARTHUR will exhibit, through the microscope, a very interesting specimen of papilloma that I removed six weeks ago from a girl twenty-one years of age. She has had abscesses in different parts of the body since she was three or four years old, up to two years ago. Her front teeth were decayed, and her general appearance was cachectic. She also had a complete procidentia of the uterus. In spite of the fact that she had been kept in bed nearly a month, there was still a temperature of 101° and 102°, even going as high as 103° in the afternoon, not due to the prolapse, as the uterus had been replaced and did not come out while she kept her bed. She did not tolerate a thorough examination, so I put her under either and found a small tumor about the size of a goose egg on the posterior surface of the broad ligament. I took it to be an abscess of the ovary, although not clear about it. Her pulse was very weak. At the operation I found this mass completely invested in dark gray, adherent omentum. I could not get it out without ligating and cutting away the omentum all around. Its main connection with the patient appeared to be the infundibulo-pelvic ligament. Its connection with the uterus was so friable that, upon slight traction being made, it tore loose and left a mass of apparently necrotic, bleeding omentum in my hand, extending behind the uterus to the opposite side. In removing this unhealthy tissue, I had to leave a short stretch of intestine without any omentum. The interior of the patient's pelvis seemed pretty well torn to pieces, and filled with ligatures. The abdominal cavity had been open about two hours, and considerable blood had been lost.

She has, however, made a good recovery, except that over-exertion or attacks of bowel complaint bring on a pain in the iliac region. The uterus is in a normal position, and hence cured of its prolapse, but not yet movable in the pelvis.

Professor L. L. McARTHUR: I have had the pleasure of examining this specimen, and find it to consist of a rather rare growth for this region, that is, a papilloma. By a papilloma, one usually understands a structure consisting of connective tissue and capillary blood-vessels, covered with epithelium, that may be either simple or compound, according to location; in fact, resembling the structure of the papillæ of the skin. Papillomata are found very commonly about the integument. It was formerly thought that papillomata were only to be found where papillæ were to be found, as in the skin, the mucous membrane of the mouth, etc. But that view was soon changed by finding that the papillomata may develop from any epithe-

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lial surface. They are exceedingly rare when found on a serous surface, and but few are on record as being found in the position in which this specimen was found. In the "Encyclopædia of Obstetrics and Gynæcology" a few cases have been collected by Olshausen, five I believe, the first of which was presented by Prochaska. Papillomata of the peritoneum or of the abdominal cavity occur most frequently at that portion of the ovary that is not covered by peritoneum, or only partially covered by peritoneum. They vary in shape, consisting sometimes of a single finger-like projection, at other times presenting many ramifications. In this case the tumor, when presented to me, resembled very much the appearance of a little branch of cauliflower. I do not think it could be likened to anything that it resembled more closely. The tumor measured about three centimetres in length, and two and a half centimetres in thickness. I made microscopic sections of it and present one to-night. An instructive as well as interesting peculiarity about this is the fact that it is infiltrated with tubercular foci; there are miliary tubercles scattered throughout the papilloma. Very few cases have been recorded in which neoplasms are also infected with acute or chronic infectious diseases, hence it is worth placing on record.

Lange has recently called attention to the fact that new growths may take place upon diseased surfaces, and also calls attention to the fact that carcinoma has developed from a surface that in the first place was purely of a syphilitic character. And here we have a simple growth showing infiltrations that are decidely malignant. In reporting the four cases he has collected, Olshausen makes an interesting comment upon the fact that papillomata most frequently develop in the uncovered surface of the ovary *because* they are most likely to be exposed at that point to the action of irritant matter that may escape at the fimbriated extremity of the Fallopian tube, as in gonorrhœal infection, in the case of tubercular pus, or of those other irritating materials that may gain admission, and explains their growing in this situation in this way. We know that papillomata do grow where the irritation is marked and continued, as for instance in the prepuce, when gonorrhœa is present, or at the vulva.

I present this as being instructive and interesting.

The PRESIDENT also reported "Two Cases of Alveolar Sarcoma of the Uterus," and said: I have had the fortune during the past summer to meet three cases of soft, or alveolar sarcoma of the uterus. I believe there are only about 100 cases on record. I have two here; the third uterus went to pieces on extraction. This makes four cases of this kind I have seen. Both of these uteri were taken from virgins, forty-eight years old. They both presented to vaginal indagation almost the same condition, except that in one the disease extended to the external os, and both presented the same symptoms, namely, hæmorrhage and pain. In neither case was the discharge very offensive. Both took from one-half to one grain of morphine a day. Both had been curetted a week before the operation, in order to reduce the uterus and render their removal *per vaginam* practicable. One of the patients, Miss M——n, had been curetted three times before. She had hæmorrhage after hæmorrhage, each one threatening to kill her, and when she came to me she looked like a person dying with consumption, I removed the uterus with great difficulty, as the vagina was contracted from the use of styptics. The stumps healed nicely, and the patient seemed well. One morning she refused to take her food and medicine, and died the same evening. We had been unable by threats or persuasion to get her to take anything but a little rice or milk and lime-water. I suppose there is no doubt that, if she had been operated upon earlier, her life would have

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been saved. Dr. Wing made a post-mortem examination. He found the stumps were in good condition, and declared the cause of death to be inanition. The most important predisposing cause of death was probably the exhausting hæmorrhages previous to the operation.

The other patient, Mrs. Sh——, was stronger, and got well without a bad symptom.

SARCOMA OF THE OVARY.

This specimen I bring because it is fresh. It was taken out yesterday, and is a beautiful specimen of sarcoma of the ovary. There were no adhesions nor pain. It was first discovered in July, since when it has grown so rapidly as to be the size of a man's head.

Professor JAGGARD said that sarcoma of the uterus and ovaries was a comparatively rare morbid state. While he did not wish to cast aspersions upon the adequacy of the President's diagnostic methods, still he thought the well-established custom of this and similar societies ought to be strictly adhered to in the matter. Either sections of the neoplasm, showing plainly its alleged character, ought to be exhibited, or a report by a qualified pathological anatomist should be read. The evidence upon which the diagnosis of sarcoma in the specimens presented rests, in so far as it is contained in the President's remarks, is insufficient. This material, in the absence of such evidence, is well-nigh valueless for the purposes of comparative study and record. Dr. Jaggard was moved to utter these ungracious words by the fact that an enormous amount of really valuable material had been wasted, not only at this but also at former meetings of the Society.

Dr. J. FRANK (present by invitation) presented a vesical calculus formed around a silk-worm gut suture, inserted into the vesico-vaginal septum.

These pieces of calculus were removed from a woman about four weeks ago. She was operated upon seven months ago, at the County Hospital, for vesico-uterine fistula. The stitches were taken with silk-worm gut, and left in. The woman made a nice recovery, and the bladder held its contents for three months, when the urine commenced dribbling again through the vagina. The woman became very much distressed, and upon examination I found that from the site of the stitches a calculus had formed within the bladder, about half the size of a billiard ball. I removed the calculus, and in one of the pieces I have here there is one of the stitches. The woman made a good recovery.

Dr. HENRY P. NEWMAN read a paper entitled "Alexander's Operation, with Report of Cases."

My object in presenting a necessarily brief report of seven recent cases of Alexander's operation is, first, to invite the consideration of this Society to the operation of shortening the round ligaments for uterine displacements.

Second, to refer briefly to the manner of operating, suggesting some modifications in the *technique*, which have been applied in five consecutive cases.

The operation, as is well known, was given to the profession early in 1882, more than six years ago, by Wm. Alexander, of Liverpool.

Since then it has been performed upward of three hundred times, as reported by different operators, with very satisfactory results. Notwithstanding these promising reports, and all that has been said and written by those who are familiar with the operation and convinced of its utility, there has been much adverse criticism from high authorities in gynæcological literature.

The clinical evidence thus far obtained is decidedly in support of the utility of the operation.

Dr. Alexander himself, in his brilliant report of eighty cases in hospital and private practice, has demonstrated the fact that the anatomical cure of retroflexions and retroversions by shortening the round ligaments is a most certain result of the

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operation; and in cases of prolapsus, when he operated upon the perineum at the same time, he was equally successful with what he termed the "double operation."

The unpublished cases of our president, Dr. Byford, and those reported by Dr. J. H. Kellogg, of Michigan, are confirmatory of the success of the procedure in the hands of American operators.

Due credit should be given to Dr. Doléris, Paris, France, for his excellent paper on "Combined Operations for the Relief of Uterine Deviations or Displacements," wherein he classifies the factors which unite in maintaining the pelvic equilibrium, and endeavors to point out the indications for the performance of the Alexander and other accessory operations.

In my own cases, I had early been convinced of the advisability of using all auxiliary therapeutic measures, preparatory to shortening the round ligaments, as will be seen in the appended cases.

In three of the seven, the cervix and perineum were repaired; in one, cervix alone; in one, anterior and posterior colporrhaphy were done, and in one, scraping or curetting the uterus for vegetations, and in each instance shortening of the round ligaments was not resorted to until other feasible methods had been given a fair trial.

This manner of procedure seems to me especially demanded in cases of procidentia, particularly when there is a capacious vagina, a relaxed anterior or posterior vaginal wall, or torn perineum; in other words, where anterior and posterior colporrhaphy and perineorrhaphy are indicated. While I would not say that, in these complicated cases, no benefit could result from Alexander's operation alone, I believe it to be good surgery to fortify it by such auxiliary measures as are known to remedy the tissues at fault, and not to over-estimate the proper function of the round ligaments.

For similar reasons I should favor the treatment of long-standing or aggravated cases of flexions accompanying backward or forward misplacements, by such methods as that devised by Professor A. Reeves Jackson and others, for restoring the integrity of the uterine walls.

The seven cases which I shall briefly outline, are of such recent date that I publish them, in this connection, merely to illustrate a modified method of operating, which has been, in the main, suggested by Dr. J. Frank, attending surgeon to the St. Elizabeth's Hospital, and its adaptability verified by dissections upon the cadaver.

I begin the operation by cutting directly down upon the internal inguinal ring, using the superficial epigastric vein, and beneath this the illio-inguinal nerve, as guides, lying as they do directly over the canal of Nuck.

The superficial landmarks are the same as are usually followed in this operation, *i. e.*, Poupart's ligament, spine of the pubis, and the anterior superior spinous process of the ilium.

The superficial epigastric vein, as well as the internal ring, is situated midway between the two last-named bony prominences.

The primary incision, beginning just above the spine of the pubis, and extending one and a half inches or more upward and outward, parallel with Poupart's ligament, comes at once upon the vein, which will be found in the subcutaneous fat, near the upper third of the cut.

This vein, though often the size of a goose-quill, having no material importance except as a guide, is ligated and cut across leaving the ligature long, for facility in locating.

On reaching the underlying external oblique aponeurosis, which is easily recognized by its glistening white appearance, it is cut through in the course of its longitudinal fibres, and corresponding with the superficial incision.

The ilio-inguinal nerve is now seen lying along the course of the canal, just beneath or mingling with the lower marginal fibres of the transversalis muscles.

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It is just beneath the point where the epigastric vein crosses the course of the ilio-inguinal nerve that the round ligament can be readily defined.

If the muscular and fibrous tissues surrounding the cord are picked up *en masse* by forceps, and slightly pulled upward, and then spread over the thumb or finger inserted beneath, the whitish, slightly flattened, cord-like ligament is seen.

It is now isolated, largely by the fingers, and made to run, care being used not to injure the ilio-inguinal nerve, which should be drawn to one side.

The ligaments should now be pulled upon to their full extent, or until the uterus is drawn upward into an erect or somewhat anteverted position, as is determined by an assistant's finger in the vagina, who either holds the uterus in this position by a sound *in utero* or immediately inserts a preivously fitted pessary.

The ligament is stitched to each side of the canal by a suture of silk-worm or chromic acid catgut, passing the stitch through one pillar of the canal, then into the taut ligament and along its longitudinal fibres, and returning it through the pillar of the same side.

The *canal* is then closed by two or three sutures of the same material, made to include a small portion of the cord, but drawn only sufficiently tight to approximate the edges.

The loop of the ligament, instead of being excised, is secured by a firm stitch uniting the proximate ends, and then folded into the wound after the method of Dr. Burt, of Boston.

The wound is now closed, the customary drainage-tube inserted—supplemented by prepared iodoform wicking drawn into the depth of the tube for capillary drainage.

The ligament of the opposite side—which, after being pulled out and held by a sponge or pledget of gauze inserted beneath, was covered with antiseptic gauze and left—is now treated in the same manner.

Strict antiseptic precautions having been used in all details of the operation, permanent iodoform dressings are applied, and the wound exposed only in case of rise in temperature or excessive soiling of the dressings, until the fourth or fifth day, when the drainage-tube is removed and the wicking substituted.

Patient is kept in bed about four weeks, great caution insisted upon in getting up, and for four to five months following no severe exertion is allowed.

The pessary is retained during this period, and an elastic abdominal support worn.

CASE I.—Mrs. L., age 33, married twelve years; one child, ten years of age. No miscarriages. Puberty at fifteen.

Slight laceration of cervix and perineum. Uterus large, prolapsed, and retroverted; depth four and one-half inches. Troubled with menorrhagia and metrorrhagia for several months, the introduction of the sound invariably causing hæmorrhage.

Suffered much pain at the menstrual period, and was never entirely free from distress in the pelvic organs.

In March last, I curetted the uterus for vegetations, removing a large quantity.

April 21, I performed Alexander's operation. The wound did well, and patient was able to sit up at the end of the fourth week.

In the ninth week, when she returned to her home in Nebraska, the uterus was found in good position, well up in the pelvic cavity. When last heard from, August 1, she reported herself in better health than for years, and doing her own housework, which she had not been able to do for eight years.

CASE II.—Mrs. W., 35 years of age. Had borne eight children, and had two miscarriages. Had been under medical treatment constantly for two years, and had not been well for ten.

Uterus retroverted and strongly retroflexed; laceration of cervix and perineum.

February 6, 1888, was operated upon by Dr. R. N. Hall, for lacerations of cervix

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and perineum, and the uterus was dilated at the same time for the purpose of straightening.

The flexion returning, however, I was asked to do Alexander's operation.

May 31, the round ligaments were shortened. Some difficulty was experienced in picking up the ligaments, necessitating tearing of the tissues.

There was some sloughing in this case, referred partly to the tearing of the tissues in operating, and in part to the patient herself, who persisted in continually disturbing the dressings.

She was an extremely unmanageable patient, and on June 19 left the hospital without the knowledge of her attending physician, who abandoned the case, and consequently nothing further has been learned of her condition, except what may be inferred from the fact that the doctor in passing has seen her around the house.

CASE III.—Mrs. P., age 36 years, had suffered for eleven years from prolapse or procidentia of uterus; ovaries large, tender, and prolapsed, so that pessary was tolerated with great difficulty.

Was able to do little or nothing in the way of household duties, though the mother of a large family.

Menses irregular, profuse, and painful. When first seen, early in May last, the uterus was enlarged and heavy, appearing at the vulva, and the effort of straining or bearing down forced it without the vaginal orifice.

Vagina was capacious, and rectal and vesical walls greatly relaxed.

The operations of anterior and posterior colporrhaphy were advised, and a few weeks after performed, with only partial relief.

The round ligaments were shortened August 16, 1888. Wound healed promptly by first intention.

In fourth week patient was up and about, and left the hospital at the end of the fifth, feeling quite well, with the uterus retained in normal position.

She was seen six weeks after the operation at her home, and expressed herself as still feeling well. Had little or no pain at last menstrual period, and was engaged in light household duties.

Examination showed uterus held well up, and scarcely resting upon the Hodge pessary which she had been instructed to wear.

CASE IV.—Mrs. E., age 23, married four years. One child, two miscarriages. Had suffered three years with prolapsus and subinvolution following the birth of her child. She also had lacerated cervix and perineum, and suffered more or less constant dragging pain at the menses and during the month. Flow profuse, irregular, and followed by leucorrhœa; reflex dyspeptic symptoms of great annoyance, not relieved by the usual remedies.

June 1, I operated upon the cervix and perineum, with only slight relief of the reflex symptoms.

August 24, I shortened the round ligaments nearly four inches.

The operation was followed by no unpleasant symptoms, and at the end of the third week the patient was allowed to sit up, and returned to her home at the end of the fourth week.

Five weeks after the operation has none of her former distress in back and sides; dyspeptic symptoms are rapidly improving.

The uterus remains in excellent position, and involution is taking place rapidly.

CASE V.—Mrs. N., age 29 years, eleven years married. Three children, two miscarriages. Nine years ago began to have backache and bearing-down pains. From year to year these have become worse, until she has been almost incapacitated for her household duties. When first examined, some eight months ago, the uterus was found heavy, prolapsed, and retroverted; cervix and perineum badly torn; both ovaries enlarged, prolapsed and tender, so that no pessary could be endured.

In June last, the double operation upon cervix and perineum was performed; and

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Alexander's operation on August 25, at her home. Though lacking in conveniences and trained attendants, patient's recovery was rapid and satisfactory, requiring but little more care and attention than an ordinary cervical or perineal operation.

In the fifth week after the operation I find the woman about the house and attending to her household duties, but exercising caution as she has been strictly enjoined.

Instead of the prolapsed and retroverted uterus, and ovaries prolapsed, tender, and enlarged, we now find both uterus and ovaries drawn well up, the latter beyond the reach of the finger.

No pain is experienced, and the patient feels herself recovered, though showing some anæmia and weakness from the confinement incident to the two eperations and the result of her former condition.

CASE VI.—Mrs. G., age 34, married three years; no children. Former occupation, laundress and seamstress. Has suffered with retroversion and prolapsus for fifteen years, with distressing pains in back, with dysmenorrhœa, and irregular menses followed by leucorrhœa.

At her own urgent request, Alexander's operation was done the 27th of August last. In this case the healing was so prompt that, being obliged to leave the city for a short time, I yielded to the temptation to remove the stitches—in this instance, silk—on the fifth day. I left the case in care of Dr. C. W. Leigh, who reported satisfactory progress until subsequent dressing on seventh day.

On this day, some sudden movement in bed resulted in slight gaping of the wound upon left side.

On account of this, the patient has been kept in bed for the wound to heal by granulation. I expect no trouble from the accident. The uterus is held in good position, and wound in the right side is healed firmly. In other respects, she is in excellent condition and feels well

CASE VII.—Mrs. S., age 27, married five years; three children. Had retroversion of uterus and ovarian prolapse. Menses always painful, and often prolonged eight days. Pain in back. Uterus subinvoluted, cervix and perineum torn. Leucorrhœa profuse and constant. Patient very much reduced and unable to work.

Trachelorrhaphy and perineorrhaphy were performed in June, and a uterine support subsequently used, without relieving her distressing symptoms.

The round ligaments were shortened four inches on September 11.

Union by first intention; uterus held well in position and everthing promises speedy recovery with good results.

The last five cases are reported simply to illustrate the anatomical results of the modified method of operating.

In each instance the healing has been by first intention, the amount of surgical disturbance nil, and the results, to date, all that could be desired.

The advantages claimed are the readiness with which the round ligaments are found and separated from their environment, necessitating no tearing of the surrounding parts and disturbance of the tissues about the external inguinal ring, and the terminal filaments of the broad ligament at its pubic end, with the least possible danger of hernia as an after result.

Should it be possible, as has been suggested by Dr. Frank, and, as I learn from late readings, is practiced by Dr. Doléris, to do without the drainage-tube, the operation and after-care would be even more simplified and devoid of some of its now possible accidents.

Professor W. W. JAGGARD: The construction of the indications for Alexander's operation is a curious study. An eminent gynæcologist, especially prominent as a skillful operator, resident in a metropolis, with a large and uncommonly exacting clientéle, writes: "For unmanageable cases of posterior displacement—which I have not yet met with—a new operation has been devised, that of shortening the round

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ligaments. But since this operation is in its infancy, and I thus far have not had any need of resorting to it, I cannot yet recommend it to you" (Goodell, "Lessons in Gynæcology," 1887, p. 165). On the other hand, a practitioner at Land's End sees the need of this operation one hundred times in three years! This difference in opinion and practice requires no comment, and the moral is perfectly obvious. It reminds one of Billroth's remarks on the unjustifiable frequency of excision of the pylorus for cancer. After he had determined for himself the feasibility of the operation, he waited just four years before he saw a case that indicated the procedure. Within six months of the publication of this case, the operation had been performed some half-score of times by minor surgeons.

In the cases reported this evening, two conditions were uniformly present—in each case the uterus was perfectly movable and easily replaceable.

Before resorting to such an heroic measure as Alexander's operation, it seems to me to have been the plain duty of the operator to attempt persistently the bimanual correction of the displacement, and the retention of the uterus in normal position by a suitable pessary. It is not sufficient to say that "pessary treatment" had been unsuccessfully tried before the cases came under his observation. Nowadays, it is the surgeon's duty, not merely to perform an operation, but also to determine for himself the nature and force of the indication.

For myself, I have as yet encountered no case presenting a clear indication for shortening of the round ligaments, and, hence, I have never performed the operation. But I have frequently seen the operation performed by others. In one case, the round ligaments were shortened to correct the retroversion of an infantile uterus, no bigger than the end of your thumb, in a virgin of eighteen. In two cases the retroversion was due to subinvolution, and the operation was done within twelve months of the antecedent confinement.

I desire to limit my remarks to the single point of indication for the operation. I have no intention, at present, to discuss the absolute merits of the procedure, nor its claims in comparison with the devices of Emmet, Schücking, and others. In the interesting paper read this evening, in my opinion, the indication for Alexander's operation is adequately sustained in not a single case.

Dr. J. FRANK: There is a question in my mind as to whether the operation is performed for disease of the uterus or of the round ligaments. It can be either, although the trouble has always been referred to the uterus and not to the round ligaments. The uterus can be retroverted because the round ligaments are diseased, or the uterus may be enlarged and drag upon the round ligaments, and still the fibres may be in a healthy condition. The round ligaments are made up mostly of elastic fibres, and if there is degeneration or atrophy, I do not think the operation would be useful. I think, just as Dr. Jaggard does, that much can be accomplished with pessaries.

There is another question about this operation. Will the cicatrix that is made by the incision last? Won't it be the same as in hernia operations; after awhile the cicatrix will begin to atrophy and soften, and allow the uterus to go back into its place.

The PRESIDENT: I have, so far, operated in twenty-one cases, and believe in the operation as at first, but do not operate as much. I have had two failures. They were failures because I ought not to have performed the operation. In one case there was salpingitis with adhesions; in the other case there was an enlarged ovary and hydro-salpinx. The case of salpingitis resulted in slight peritonitis, with a temperature of 102 Fahr. for several days. I took out the pessary at the end of six weeks, and at the end of two months, when she was at her housework, retroversion and peritonitis recurred. The uterus can now be easily held up by a pessary, while it could not

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before the operation, and will remain up after the pessary is removed until some strain forces it down. At present it is in position without a pessary. I think the uterus would stay in good position if the patient would allow me to remove the enlarged tube, but as it is, she is better off than before the operation. In all of my operations, I now leave the pessary in place from six months to a year. I had another case which might be called a failure, as an inguinal hernia resulted. The patient had been to some of the most eminent gynæcologists in Chicago, one of whom wanted to remove the ovaries. She could not tolerate a pessary of any description. Now she wears a pessary without trouble; the uterus is up, and she is one of the most grateful patients I have, in spite of her rupture. On account of this hernia, I threw aside my catgut, and I now use none but silk-worm gut sutures, and leave those that close the canal and hold the ligament.

One great drawback to the operation is that the patients are not always immediately cured of symptoms. If there have been pelvic contractions or adhesions, there may be a dragging on these for some months. The first case I had was of this kind. The pessary was left in two months. She complained long afterward of a dragging on the groins, but at the end of a year she could, for the first time in several years, do her own housework, and take care of her home. She had previously had gynæcological treatment for five years, the last two by myself.

In regard to the technique of the operation, I think that Dr. Jaggard is right in saying that many bungling operations are done, but that has nothing to do with the indications for so new an operation. It is possible to do a good operation. Suppuration should be exceptional. I use drainage for twenty-four hours, merely to let out the bloody oozing.

It is objected that the round ligament is not a normal support of the uterus. We do not shorten the round ligaments to support the uterus in cases of retroversion, as is so generally misunderstood; we merely turn the fundus forward and depend upon the normal abdominal pressure to hold it forward.

Of course, the operation is only for the few cases in which the displacement causes symptoms, and in which it can be replaced, but cannot be permanently retained in position by less available or less dangerous means.

ANNUAL MEETING, FRIDAY, OCTOBER 19, 1888.

The President, HENRY T. BYFORD, M. D., in the chair.

After the reports of the secretary, treasurer, and editor were read and accepted, the retiring president read a paper entitled "Twelve Months of Abdominal and Vaginal Section."

The following officers for the year 1888–1889 were then elected:

President, Charles T. Parkes.
First Vice-President, E. J. Doering.
Second Vice-President, E. C. Dudley.
Secretary, Edward Warren Sawyer.
Treasurer, F. E. Waxham.
Editor, W. W. Jaggard.

The Society then adjourned.

AMERICAN ACADEMY OF MEDICINE.

The twelfth annual meeting of the Academy occurred in New York, November 13 and 14.

After reading of the minutes of the preceding annual meeting, the deaths of Drs. C. R. Agnew and Howard Pinkney, of New York City; M. H. Bosland, of Pittsburgh, Pennsylvania; Theodore T. Wing, of Susquehanna, Pennsylvania; E. S. Dunster, Ann Arbor, Michigan, and Stephen B. Kieffer, of Carlisle, Pennsylvania, were announced.

A report of the standing committee on the requirements for preliminary education in the various medical colleges in the United

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States and Canada was made through Dr. Leartus Connor, of Detroit, Michigan. It stated that in the United States there are 116 medical schools, of which it is claimed that 89 announce certain preliminary educational requirements which vary considerably. The report maintains that the most effective way of elevating the standard of requirements is by the united effort of the profession to secure definite preliminary education as an essential to the beginning of the study of medicine.

Dr. J. C. WILSON, of Philadelphia, Pennsylvania, read a paper on the "Causes and Prevention of the Opium Habit and Kindred Affections."

He divided the causes into three classes:

1. Example, as shown in case of those who become opium-eaters through the example of friends.

2. Suggestion, shown in those who acquire the habit through the reading of literature concerning it, or from familiarity with the drugs, as in case of physicians, students of medicine, druggists, and nurses.

3. Medical prescriptions.

It is an unfortunate fact that the greater number of the victims to the habitual use of opium become such through abuse of opiates originally prescribed for the relief of pain.

As measures for the prevention of such habits he suggested—

(*a*) The dissemination of proper knowledge of the methods by which the opium-habit is acquired, and the great dangers of this habit;

(*b*) A reasonable presentation of the facts in popular works upon hygiene; and,

(*c*) Proper protection on the part of physicians in prescribing narcotics.

He claimed that prescriptions for narcotics should not be renewed by druggists without the written order of the physician who had prescribed them, and that only in the most exceptional cases should the hypodermic syringe be prescribed for the patient's use himself. He maintained that existing laws, designed to restrain unauthorized sale of narcotics, are not adequate to control the evil, and that their enforcement has seemed impracticable.

Professor THEOPHILUS PARVIN, of Philadelphia, Pennsylvania, read a paper on the "Importance of Practical Obstetrics" in the course of instruction given by medical schools, in which he maintained that practical as well as theoretical obstetrics should be made a part of the regular course of every medical college, and asked the indorsement of the Academy in maintaining that position.

The annual address by the President of the Academy, Dr. F. H. GERRISH, of Portland, Maine, was delivered, in which he clearly demonstrated the necessity for more than a mere grammar-school education as proper preparation for the study of medicine, and presented the disadvantages under which the medical student labored without proper preliminary mental training before beginning his medical studies. He drew attention to the influence exerted by the State Board of Health of Illinois by establishing a minimum standard of requirements by medical colleges to entitle their diplomas to be recognized in the State of Illinois.

He further discussed certain amendments to the constitution of the Academy offered at previous meetings, one of which referred to the code of ethics. After consideration of the subject during the session of the Academy the matter was postponed until the next annual meeting.

Dr. R. L. SIBBET, of Carlisle, Pennsylvania, under the title of "A Few Words Concerning Our Academy," recalled its organization in 1876, and the fact that one of the objects of its establishment was to aid in elevating the standard of preliminary education among those intending to study medicine, and recalled the fact that at the time of its organization there were no State laws relating to the practice of medicine in our country that were rigidly enforced. He believed that the influence that had been brought to bear by the Academy

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through the Fellows resident in different sections of our country had done much to aid in the establishment of State boards of examiners which exclude from practice unqualified medical men, and that graded courses of instruction had been established in many of the best medical colleges in our country. He believed that the fact that the Academy had set a high standard for admission had exerted no inconsiderable influence in these advances made toward higher medical education in the last twelve years.

Dr. GEORGE J. FISHER, of Sing Sing, New York, read a paper entitled, "The Famous Historic Masters of the Healing Art were Men of Classical Education." In tracing the history of medicine from Hippocrates to the present time, he cited many instances in which medical men whose fame was most enduring were those who had had the advantages of liberal classical education with the mental discipline which such study implies, and urged that all practicable influence be brought to bear to secure the broadest and most liberal education for those contemplating the study of medicine.

Dr. L. D. BULKLEY, of New York City, read a paper on "The Relations Between the General Practitioner and the Consultant or Specialist," the object of it being to point out the mutual relations which should exist between the general practitioner and the specialist.

Dr. GHARES C. LEE, of New York City, read a paper entitled, "The Necessity for Post-graduation Instruction in the Present State of American Medical Education," citing the fact that the first post-graduate medical school was organized in this country in 1882; that several now are in existence in different cities in this country; that the advantages offered now for medical education no longer leave it essential for students of medicine to visit European medical schools, and that the chief advantage of the physician now visiting Europe is to enable him to institute comparisons in the methods of practice and of teaching, by familiarity with the methods of different countries, to liberalize his views.

Dr. HENRY I. BOWDITCH, of Boston, Massachusetts, read a paper entitled "Tolerance and Intolerance in Medicine; Codes of Ethics; What Code should this Academy Adopt," in which he repeated the views he entertains regarding the code of ethics of the American Medical Association, which have become well known to the medical profession.

He concluded by expressing the hope that the Academy, by the work of its individual members, by its own general labors, would tend to bring the whole profession of America up to higher grades of thought, or sentiment, and of action, so that we may at length really become what we have hitherto, but with unconscious falsehood, claimed to be, a truly liberal profession.

Dr. CHARLES MCINTYRE, of Easton, Pennsylvania, read a paper whose title was "Which is the Liberal School?"

Dr. C. C. BOMBAUGH, of Baltimore, Maryland, read a paper on "The Multiplication of Useless Drugs," and referred to the great number indicated by the index of the fifteenth edition of the United States Dispensatory. He advocated materially curtailing the number to be embraced in the list of officinal preparations, and advocated determining more definitely the value of many of them by further experiments upon inferior animals.

A paper by Professor H. A. JOHNSON, of Chicago, Illinois, "Relative to the Influence of the Work of the Illinois Medical-Practice Act upon Medical Education," was read. (It appears elsewhere in this number of the *Journal and Examiner*.)

Two papers were read by title—one on "The Treatment of Uterine Disease by other than Surgical Means," by Professor W. F. WAUGH, of Philadelphia, Pennsylvania; the other, "The Evils of a Medical Dialect Separated Widely from Classical English," by Professor EDMUND ANDREWS, of Chicago, Illinois.

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About one hundred new Fellows were elected. Those from Chicago were Drs. A. H. Foster, G. S. Isham, W. Van Hook, J. S. Knox, and E. B. Weston.

As honorary Fellows: Drs. J. H. Rauch, Springfield, Illinois; Sir Joseph Lister and Sir Spencer Wells, of London, England; J. L. Champonière, Paris, France; H. D. Didima, Syracuse, New York.

Officers elected for the ensuing year are:

President, Dr. Leartus Connor, Detroit, Michigan.

Vice-Presidents, Drs. P. D. Keyser, Philadelphia, Pennsylvania; I.. D. Bulkley, New York City; T. Parvin, Philadelphia, Pennsylvania; G. J. Fisher, Sing Sing, New York.

Secretary and Treasurer, Dr. R. J. Dunglison, Philadelphia, Pennsylvania.

Assistant Secretary, Dr. Charles McIntyre, Jr., Easton Pennsylvania.

Place of next annual meeting, Chicago, Illinois.

ALLEGHENY COUNTY MEDICAL SOCIETY.

A special meeting was held at Pittsburg, Pennsylvania., August 21, 1888, W. M. Brinton, M.D., President, in the chair.

Dr. E. T. PAINTER read a paper on "A Case of Œsophageal Stricture."

The patient, æt. about 38, complained of difficulty in swallowing food, and its regurgitation, both liquid and solid, and of inability to drink cold water or other cool drink. It was first noticed that food would not move on in response to the usual movements of deglutition, and that its ownward progress was assisted by a few gentle raps on the back. This symptom first showed itself about six years ago. From this slight difficulty in the passage of solid food to the stomach, the patient gradually found herself compelled to subsist wholly on liquid foods, and these could be retained only when taken at a certain warm temperature. Neither water at ordinary temperature, nor cool drink of any sort, nor solid food, had entered the stomach in a period of years. She was emaciated and destitute of physical vigor.

An examination of the œsophagus with a bougie proved the existence of a band, which would resist the further progress of the instrument till the constriction willed to give way, when the bougie would easily slip into the stomach. Neither had the diameter of the bougie, nor the flexibility of a tube, nor force, seemed to have anything to do with passing through the constricting ring. Passage beyond the constriction could be made only when the ring was so disposed and inclined. There had been no pain or hæmorrhage. There was no history of the introduction of a foreign body and its impaction, or of the swallowing of a strong acid or strong alkali. No aneurism was evident. There is no history of carcinoma. The constriction was sixteen inches from the lower incisors. Dysphagia and regurgitation, which prevented the patient retaining sufficient nourishing food, were the only symptoms given.

As drugs, massage, the passage of a flexible tube, and the Faradic current had failed to accomplish any good results, he resolved to give a thorough trial to the galvanic current locally applied. He employed from six to ten cells of a galvanic chloride of silver battery, placing a sponge electrode joined to the negative pole in one hand, and an œsophageal electrode connected with the positive pole within the constricting ring. This electrode consisted of an ovoid shell, seven-sixteenths of an inch by three-fourths of an inch, of perforated hard rubber, which could be unscrewed in the middle, and had sufficient space within for absorbent cotton which came in contact with a small expanse of platinum, and that in turn was united by an insulated wire to the battery.

The battery used gives a current absolutely constant in character; and a water rheostat served to differentiate the strength of the current. The applications were made three times a week for a few weeks,

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then twice a week, each treatment lasting from six to twelve minutes.

At the termination of the first treatment the following contingent took place. On attempting to withdraw the œsophageal electrode, it came easily in response to traction for a few inches, when it was seized by a contraction of the œsophagus, and there firmly held for a few seconds. This peculiar accident did not happen a second time. After each treatment the patient placed herself in a recumbent position for a half-hour. At the fourteenth visit the electrode was passed through and beyond the point of stricture without the knowledge of the patient, nor did she feel any sensation of opposition. At dinner, after the fifteenth application, the patient ate meat and bread and butter.

In about three months twenty-five applications were made, obtaining most decided improvement. The contracting ring persists, but its irritability has disappeared. The patient eats, without regurgitation, of what others at the table partake, restricting herself in only one item of food—meat, which is cut fine for her. She drinks water and milk freely. For a time the stomach, unaccustomed to such foreign substances as bread and butter, strawberries, cheese, etc., made the patient aware of its change in function by dyspeptic disturbances.

The interesting points in this case are these: The ease with which a diagnosis of dyspepsia could have been made, its long existence, its obstinacy under manifold treatment, the continued presence of the stricture without its irritability, and the rapid change in character of the constriction under the influence of the galvanic current.

Dr. DUFF related the history of a case of purpura simplex in a child. The case improved under treatment for several days, when the condition changed, and is described by Dr. Duff as follows:

The child was suffering very materially from its teeth, and was biting its gums and crying a great deal. I examined its gums, and found them very much swollen. I thought to relieve it by scarifying the gum; this was in the evening about five or six o'clock. I scarified the gum over one of the canine teeth and went home. About daylight I was called to the house, and found the child lying in bed, blood all over the mother's clothing, the bed bloody, and the child pulseless. I administered restoratives and worked with it for some time until it revived somewhat. In the afternoon I saw it again and the purpuric spots had reappeared on its back, and there was some hæmorrhage from the bowels as well as hæmorrhage from the bladder. The child died the next morning. There was no history of hæmorrhage in the family, with the exception of the father, who has frequently had severe hæmorrhages from the nose. There is no history of tubercular trouble in either branch of the family.

Dr. J. J. BUCHANAN presented a paper on "Fractured Patella Treated by Wiring."

The patient is a German laborer, and his fracture was the result of direct violence. He stated that the accident happened in the middle of the day of June 30. He continued to do his work till evening, but on the following day found that he was unable to stand on the limb. It is probable that the blow broke the bone, but the capsule held together till evening. When he was brought to the hospital, five days afterward, the joint was considerably distended and the fracture easily recognized, but the lower fragment seemed to be very small. The operation was on the eleventh day after the injury.

The most scrupulous precautions against sepsis were taken. Instruments and appliances were put through the same course of preparation as for laparotomy. Continuous irrigation with 1-2500 sublimate solution was employed, and the transverse incision was made to the full extent of the rent in capsule. The lower fragment was not larger than a chestnut. The capsule was much lacerated, and a number of narrow shreds hung into the joint; the joint con-

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tained a great deal of clotted blood and bloody fluid. The joint was thoroughly washed out and all loose pieces and ragged ends and edges of capsule were cut away with scissors. The fractured surfaces were refreshed by the vigorous use of a curette.

A single hole was drilled through each fragment, the drill entering about three-eights of an inch from the line of fracture and emerging at the cartilaginous border of the fractured surface.

A special meeting was held September 18, 1888, W. M. Brinton, M. D., President, in the chair.

Dr. W. P. MUNN, read paper on "Chronic Intestinal Obstruction: Report of Case and Operation."

Mrs. E. A., æt. 31, the mother of five children, the youngest aged eleven months, the oldest twelve years of age. Two years ago she began to be of a constipated habit, but had no special medical attention. Early in 1887 she became pregnant, and in October was delivered at full term. Her confinement was uncomplicated, and her recovery uninterrupted. She resumed her household duties sooner than I thought advisable, on account of not being able to secure proper help. She never became quite as robust as she had been, and complained of constant dragging pain in the back and pelvis, but especially on the left side; the tendency to constipation continually increased, her general health failed in spite of tonic treatment, and her face assumed a cachectic appearance.

In January I was called to see her on account of a more than ordinarily obstinate attack of constipation, the bowels not having moved for seven days, although enemata had been employed every day. During the next three days she took, successively, calomel, 20 grains in divided doses, castor oil, sulphate of magnesia, and sulphate of soda, but without any effect. Then I prescribed an aloin, strychnia, belladonna, and ipecac tablet every three hours; by mistake she took one of these every hour until twenty had been taken, at the same time using hot-water enemata twice daily. No effect was produced beyond excessive tympanites. Digital examination of the rectum showed it to be empty; *per vaginam* a sensitive induration was discovered posterior to, and slightly to the left of, the uterus.

Dr. W. S. Foster now saw her in consultation. Placing her in Sims' position, with the hips well elevated, we introduced the long tube of a stomach pump into the rectum, until it encountered some obstacle at or near the sigmoid flexure, which was partially passed after a little careful manipulation, and then injected about a quart of hot water into the bowel. She could feel this passing through the descending and transverse colon, but on rising and using the chamber, only the water retained in the rec tum was evacuated; the remainder drained away slowly after several hours, but only one or two small lumps of fæcal matter passed. Five times in the next three days I repeated this maneuver, adding each time an ounce of castor oil to the warm water in the syringe, and she finally had a free *fluid* movement, very large in quantity. This was on the fourteenth day, and all this time, although the abdomen was somewhat distended and the pelvic pain continued as before, there was no elevation of temperature or any other sign of peritonitis.

Following this attack she improved much, but it was found necessary to keep the contents of the bowels in a fluid condition by the daily administration of salines; neglect of this for twenty-four hours was invariably followed by a recurrence of the old symptoms, and necessitated a return to the long tube of the stomach pump, as before. All this time she kept up the daily use of the hot vaginal douche; but notwithstanding this, the induration in the posterior *cul de sac* appeared to increase; the left ovary could be isolated by careful bimanual examination, and though somewhat enlarged and very tender, it was very slightly movable. The right ovary seemed to be

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normal in size, location, and mobility, but was abnormally sensitive. Her pelvic pain radiated from the ovaries and was constantly increasing in severity.

Early in March an attack of peritonitis threatened, but was averted by the free and persistent use of saline cathartics. Following this, she gained strength for several weeks, and at the end of the month she was able to be out of bed for a few days, but the improvement was only temporary, and the end of April found her once more bed-ridden.

Two attacks of localized peritonitis occurred between this time and the 10th of June, and each time the patient rallied more slowly. Her appetite began to fail, and even the semi-daily administration of salines failed to keep the contents of the bowels soluble. The constant catharsis was also a severe drain on a naturally strong constitution.

The exact nature of the obstruction could not be determined, but it was certainly at or near the sigmoid flexure. The possible conditions were from, *first*, simple stricture or narrowing of the bowel; *second*, a neoplasm, perhaps malignant, involving the bowel at this point; *third*, constriction by fibrinous bands, resulting from peritonitis; *fourth*, a tube or ovary, probably the left, attached to the bowel as a result of inflammatory action and forming the obstruction.

Palliative and expectant treatment and persistent use of electricity having utterly failed, and the patient's condition becoming progessively worse, operative interference seemed the only resort, with the view of removing the obstruction if possible; and if not removable, to then stitch the bowel to the abdominal wall and establish a fæcal fistula.

Accordingly, on July 13, assisted by Dr. W. S. Foster, I opened the abdomen by a linear central incision five inches in length.

The *left ovary* was cystic and about an inch and a half in diameter, dislocated into the *cul de sac* of Douglas, and adherent by its posterior surface to the last movable portion of the intestine. The uterus was enlarged and slightly retroverted. The ovarian pedicle and the Fallopian tube were ligated with twisted silk, and removed. The right ovary, on examination, proved to be cystic also, and was removed. Adherent to the great omentum there was found a colloid body about a half-inch in length, similar to those I have seen in cases of ruptured ovarian cysts with colloid contents. This was ligated and clipped off, but was unfortunately mislaid, and the opportunity for a microscopical examination lost.

Convalescence was uninterrupted after the second day, although up to that time persistent bilious vomiting occasioned some anxiety. The bowels were fully evacuated on the fourth day by the use of saline purgatives, and after that moved naturally and unaided, except by an occasional aloin, strychnia, and belladonna tablet every day or every second day. One slight attack of constipation, lasting four days, occurred six weeks after the operation. She is still in Ohio, and writes to her husband that her strength does not return rapidly, though her appetite and digestion are good.

In reply to an interrogation, Dr. John Ashhurst, Jr., has kindly given me the following statement of similar recorded cases:

PHILADELPHIA, August 17, 1888.

DEAR SIR: Your letter of 16th inst. is received. In the International Encyclopædia of Surgery, vol. vi, p. 74, I have tabulated thirty-seven cases of laparatomy for obstruction of the bowels from tumor, strictures, ulcers, etc., ten of these thirty-seven cases having ended in recovery. I have since added to my list eleven cases, of which five are said to have terminated favorably, so that the figures now stand thus:

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Recovered	15
Died	30
Undetermined	3
Total	48

Very truly and respectfully,

JOHN ASHHURST, JR.

AMERICAN PUBLIC HEALTH ASSOCIATION.

The sixteenth annual meeting of the Association was held in Milwaukee, November 21, 23, and 24. Dr. C. N. Hewitt, of Red Wing, Minnesota, presided.

The first report made was that of Major CHARLES SMART, of the United States Army, being the report of a special committee on "The Pollution of Water Supplies," insisting on the harmfulness of sewage in potable waters from whatever source derived, whether from wells or larger sources of supply—whether supplied to dwellings or populous cities, and however remote the source of the contamination might be, so long as the sewage could in any way reach the water supply. The report drew attention to the fact that the pollutions of the smaller sources of supply of water were recognized and remedied, whereas the larger sources, though more injurious, may be overlooked or longer disregarded, and instanced the contamination of the waters by the sewage of the city of Chicago as pumped into the canal from the river and conveyed to the towns along that canal, and considered the matter of purification of water in its passage. Although that report admits that aëration doubtless does measurably promote the oxidation of organic matter under such circumstances, it claimed that various bacteria and bacilli that are known causes of malarial and typhoid fevers and many epidemic diseases were propagated under such circumstances. It stated also that settling basins, such as are used at St. Louis, nor large filters, such as are used at Atlanta, remedy this evil; that it is neither the odor nor discoloration that are the index of the pollution and potability of any water supply. Those may be remedied so far as can be observed by the unaided eye, but only careful microscopical examination or chemical analysis can determine those points.

The report indorsed the verdict of English authorities that rivers which have received sewage, even though such has been purified before it is discharged, are not safe sources of potable water. The conclusion was that, reduced to its lowest and simplest terms, the question of water supply is this: "The raising of sufficient money to bring in the wholesome water, and the investment of the health officer with power to preserve the wholesome quality of the public supply, and to prevent the use of water from sources which are known to be unwholesome." He cited the advantages resulting from an establishment of State boards of health in Massachusetts, Illinois, and Minnesota, with the power conferred upon them to examine into and regulate the sources of water supply within those cities.

The annual address of President HEWITT was next delivered, which maintained that the cause of public sanitation needs intelligent, hearty, and constant interest in, and support from, all classes of people. The aim of the Association should be to secure the diffusion of the greatest amount of intelligence among all classes, to guard against those things which result in disease, and especially to protect the homes of the poor who have neither the intelligence nor the power to protect their own homes. He quoted the language of a former president, who said: "To secure for all most perfect action of body and mind, so long as it is consistent with the laws of life; to help make all growth more perfect, decay less rapid, life more vigorous, and death more remote, are the ends sought by public sanitation." He dwelt upon the advantages of detailed sanitary work at all times, and the advantage that it gave by systematic organization in case of the occurrence of

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epidemics, provided great care was exercised. He maintained that the highest efficiency of local boards, rural as well as urban, is of the first consequence, and that the true function of a National board should be, on the one hand, to facilitate and cement the independent helpfulness of State boards among each other; and, in the second place, to provide for a thorough international system of sanitary inspection in connection with our consular system.

A paper by Dr. BENJAMIN LEE, of Philadelphia, was read, giving a series of synoptical memoranda of observations made at various quarantine stations along the Atlantic coast, including that of New York, which, though expensive, had fallen into a dilapidated condition, and was hampered by antiquated and inadequate methods under a system of political spoils-grabbing and assessments, with an enormous income from fees and fines attached to office; that of Philadelphia, of abutting on a sewer-polluted marsh; that of Baltimore, situated too near the city, and lacking proper means for disinfection; that of Norfolk, Cape Charles, and Wilmington, described as sanitary sepulchres not even whited for appearance sake. From these observations he gave the following estimate of the system:

1. Want of uniformity in quarantine regulations, placing one port at a disadvantage, either commercially or sanitively, as compared with another.

2. Conflict of authority, owing to the methods of appointing officials.

3. Entire lack of appreciation on part of local legislatures, whether State or municipal, of the importance of the expenditure of considerable sums of money in order to render quarantines efficient and inoppressive.

4. Tendency on part of the local, civic, and sanitary authorities to limit their responsibility to the protection of their own city, reckless of the consequences which may ensue to inland communities if they permit infection, which circumstances render harmless to themselves, to pass unchallenged to the latter.

Dr. CROSBY GRAY, health officer of the city of Pittsburgh, Pennsylvania, presented a report on the contamination of that city's south side water supply by surface drainage, in which he gave the results of a very careful topographical, chemical, and biological examination into the general causes of a higher death rate on that side of the city than in other portions of the same city, and particularly regarding a severe epidemic of typhoid fever which occurred recently in the district described. His investigations demonstrated that the water supply drawn from the Monongahela River is being greatly and seriously polluted by sewage, factory refuse, and other nuisances, and that the epidemic referred to had been caused by the sudden down-wash through rainwater surface drainage of the excreta of typhoid patients through gullies above the in-take.

After an attempted estimate of money lost resulting from neglect of sanitary conditions, he claimed that this great waste might be stopped by the establishment of improved water service, drawing its supply from unpolluted sources, which would in the end prove an economical measure, even though the expenditure in securing such supply might be great.

Dr. H. B. BAKER, secretary of the State Board of Health of Michigan, advocated more methodical and thorough classification of vital statistics, based on scientific and instructive principles, in order that statisticians may be enabled to draw reliable and useful conclusions.

Dr. J. H. RAUCH, secretary of the State Board of Health of Illinois, read a paper on "Yellow Fever, Panics and Useless Quarantines, its Limitation by Temperature," in which he strongly urged the establishment of an efficient National board of health. He maintained that with the thermometer at 70° Fahr. or lower, there was no danger of the spread of such an epidemic of yellow fever as has recently occured in our Southern States

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and that much of the quarantining that had been done against them was unnecessary, and sometimes even cruel; that the importation of the disease should be provided against by the most careful, expert, consulary espionage, and kept out by rationally efficient coast quarantines.

He drew attention to the depressing influence of fear of individuals and panicky feeling existing in communities in time of epidemics, and maintained that frank and accurate statements of facts promptly and authoritatively made at such times do much to guard against the demoralized state which often accompanies such epidemics, and advocated that efficient and harmonious co-operation should prevail among the various State boards of health.

Dr. F. MONTIZAMBER, quarantine officer in the Province of Quebec, read a paper giving a detailed account of the equipment on land and water for the care of immigrants stationed on Grosse Isle, and appliances for disinfecting vessels. It was followed by a discussion as to whether sulphurous acid gas is better, generated by combustion in the hold, or forced into it by means of a fan.

Dr. L. N. SALOMON briefly described the New Orleans quarantine station, describing improvements in location and equipment, present and prospective.

Dr. S. H. DURGIN, quarantine officer at Boston, described the methods observed at that quarantine station.

Dr. S. S. KILVINGTON, president of the State Board of Health of Minnesota, read a paper, in which he described this as "the era of filth formation." He strongly advocated careful sanitary measures for every modern city. He also advocated the destruction of garbage of cities by cremation. He described the characteristics of the different crematories now in operation in this country.

In discussing the merits of the different forms of crematories now in use for the destruction of garbage, Health Commissioner DeWolf, of Chicago, stated that while he had believed in the practice of garbage destruction by fire, yet he had recently been converted to what he considers a more economic, yet sanitary, disposal of garbage by the Buffalo distillery crematory.

He was followed by Health Officer Clark, of Buffalo, who described that crematory. He stated that it is odorless in its working, and that the expense of running it was defrayed by lubricating oils which were extracted in the process, and that the result of the distillation furnished fuel for the running of the furnace, thus economizing in the use of coal.

Dr. J. COCHRAN, of Alabama, read a paper on the problems of yellow fever epidemics, in which he noted the fact that yellow fever has not obtained a permanent foothold in the United States, but believed that there was danger that it might do so in that part of Florida south of the frost line. Thus far the disease has been transferred from one locality to another by persons who have been in the infected district. He advanced the idea that cats, dogs, and other inferior animals, might be a cause of spread of the contagion, as has been claimed to have been done in times of scarlet fever and diphtheria epidemics. He drew attention to the greater danger of individuals to exposure in infected districts by night than by day. He believes that white people are more susceptible to an attack of scarlet fever than negroes, men more than women, adults more than children; that persons of dark complexion are more liable than those of fair complexion. He opposed the depopulation of infected cities, and claimed that the disease makes slow progress at first, sometimes being confined to a single house, and spoke of the advantages of care in isolating private residences, which often brings immunity to the occupants of residences thus isolated. He also opposed the formation of refugee camps.

Dr. A. N. BELL, with others, submitted evidence confirmatory of the impression

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that the disease is infectious rather than contagious; that the clothing of the individual may be a means of infecting other persons, but that the disease is not taken by one individual from another even by actual personal contact—facts which seemed to have been well established by previous experience.

Dr. BELL presented a report of the committee on sanitary and medical service of emigrant ships, which showed the great deficiences existing in that service.

The Lomb prize in hygienic dietetics was awarded to Mary J. Hinman.

Several papers were read by title. Some routine business was transacted, and the Association adjourned.

President for the following year, Professor H. A. Johnson, M. D., of Chicago, Illinois. Next place of meeting, Buffalo, New York.

FOREIGN CORRESPONDENCE.

To the Editor of the Medical Journal and Examiner:

The annual meeting of the Italian Medical Congress was held in Rome on October 20, 22, 23, 24, and 25. Professor G. Baccelli, of Rome, acted as president, and Professor E. Maragliano, of Genoa, as secretary. The reunion was held in the University building, and was largely attended. President Baccelli delivered an address, dwelling especially on the visit of the Emperor of Germany, and on the duties of physicians in times of peace and war.

On October 22, a most thorough discussion was held on pneumonia. Professor Bozzolo, of Turin, spoke at length on its etiology. He mentioned the recent published stndies on the diplococcus of Fränckel, and on the streptococcus of Friedlander, and showed that the former is capable of giving origin to very different gradations of the disease. He admitted that other infective agents may determine pneumonic processes. He also demonstrated that the pulmonary cells offer a different resistance to the invasion of the diplococcus, according to the *circumambient* conditions.

Professor Magliano spoke on the treatment of pneumonia, regarding its etiology and pathogenesis. He admitted that pneumonia is an infective disease, and demonstrated that we must admit that the hypocinesis and the acinesis of the heart is due to the presence in the circulation of a toxic principle developed from the pathogenic micro-organisms. He did not approve the nihilism and the parenchymatous injections, and discussed the advisability of bleeding. To lower the fever, he advised the cold bath, and spoke against the objections raised against the refrigerant treatment. To avoid cardiac enfeeblement he avoided the use of ipecac, but prescribed alcohol, digitalis, and strophanthus.

Dr. Lucatello had observed, in examining the blood of pneumonics that the serum is absolutely sterile, and he attributed this to the development of a toxic substance from the patheogenic micro-organisms.

This important subject provoked interesting discussion from Professors Cardarelli, DeReuzi, Amoroso, De Giovanni, and others. Professor Cantani, of Naples, did not approve bleeding for the purpose of eliminating morbid poisons, and only rarely to empty a laboring heart. A physician must not treat the *pneumonia*, but the *patient* in general.

Professor A. Bianchi reported many of his researches, by which he had concluded that the heart in pneumonia dilates, and he therefore favored bleeding.

Professor Roucisvalle, of Catania, described several cases of infective pleurisy studied in his clinic.

In October 23, Professor Cardarelli, of Naples, spoke on the treatment of the functional disturbances and neuroses of the heart.

Professor De Giovanni, of Padua, mentioned the discussion held at the last

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congress at Wiesbaden on the cardiac gymnastics advocated by Hirtel. He said that the treatment of some cardiac disorders ought to be dietetic and gymnastic.

Professor Rummo explained the pharmaceutical therapy of the organic diseases of the heart, and demonstrated that the mechanism of treatment consists in proportionating the activity of the cardiac motor to the potency of the circulatory resistance with the least possible waste of strength.

In the afternoon Professor Murri, of Bologna, spoke at length on the genesis and the nature of fever, declaring himself against the majority of the modern scientists who believe it the effect of a mechanism always identical in different cases—that is, "the excitement of nervous centres as producers of the fever itself." He believes, instead, and demonstrates it on animals, that the nervous system of the patient is not the cause of the fever, but that the infecting material which enters the blood is. He therefore believes it impossible to speak of an unique treatment of fever, as there are as many fevers as infective diseases.

Professor Maragliano, of Genoa, did not agree with Murri about the mechanism of fever. He explained the good results which he had obtained with the moderate use of antifebrile remedies, also the advantages on the general condition of the patient, on his strength, etc.

Professor Cantani dissented from Maragliano. He combated the fever only in rare cases, and his ideal treatment would be to combat the cause, which we can not do at present, except in a few of the infective fevers.

Professor Baccelli, in resuming the discussion, said that he treated the fever, yet recognized that at times it ought to be let alone as beneficial to the organism. He favored cold ablutions, and recommended especially the application of ice in some regions of the body, as on the sides, and back of the neck.

On the 24th, Professors Cantani, Cardarelli, De Reuzi, Maragliano, Petri, and Rummo discussed the subject of diabetes and its treatment.

Dr. Peusuti made a full report of a case of an echinococcus cyst which he had in his clinic.

Professor Rovighi read a paper on amyotrophic sclerosis. He described his microscopical studies and reached important conclusions.

Dr. Lucatello discussed some muscular dystrophies, and showed several histological specimens.

Professor Fenoli described a case of poli-myositis, and presented some microscopical preparations.

Professor Cardarelli described a disease occurring in children, characterized by fever, enlargement of the spleen, and great emaciation. In one case the spleen was extirpated by Professor D'Antona with benefit to the patient.

Professor Ferretti reported the good effect obtained by introducing long needles into the spleen, with the view of diminishing its volume in malarial patients.

Professor Fazio, of Naples, had had analogous results with the injections of quinine in the spleen.

Several other subjects were discussed. Professor Amoroso spoke on the pulse, Dr. Testi on the treatment of typhoid fever, etc., etc.

On October 25, Dr. Guardi reported some good results obtained with the hypodermic injections of carbolic acid in some forms of neuralgia, as sciatica, superorbital and intercostal neuralgia, etc.

Professor Patella spoke of an epidemic of jaundice observed by him. He also showed some histological specimens of a case of chorea, in which little spots of softening would be seen, due to embolism of the capillaries of the encephalon.

A case of an intestinal invagination was next described by Dr. Ibba.

Dr. Serrafini spoke on the etiological unity of some forms of cerebro-spinal

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meningitis, pleurisy, pneumonia, and peritonitis, in which he found the etiological relation of these forms with the diplococcus of Fränckel.

At the afternoon session Professor Vizioli, of Naples, presented to the Congress an interesting hypnotic subject. The subject was a young Neapolitan lady who had received much benefit by hypnotism for the relief of hystero-epileptic convulsions, nervous asthma, and attacks of sleep which would last at times over two days. Professor Vizioli stated that he presented a case of great hypnotism, very rare, and such as has been described by Charcot, with the three classic stages, the lethargic, the cataleptic, and the somnambulic.

The young lady lay on a sofa, and by converging on her right eye the rays from a small mirror she was made to fall in the first stage of lethargy in one minute and nineteen seconds. While in this stage the professor provoked the following phenomena of neuro-muscular excitability: By touching the facial nerve the face contracted as if to laugh; by pressing on the cubital nerve the hand closed as if to grasp something, and opened again. Consciousness was totally lost.

From this stage the subject passed rapidly to the cataleptic state. By pressing on the occiput the subject fell into the somnambulic state. She was then suggested to have, after five minutes' time, a paralysis of motion, and of sensation of the right arm, also an anæsthesia of the pharynx.

The subject was wakened by blowing of breath in the eyes, and after five minutes, the paralysis of the arm was complete as was suggested. She was punctured with pins, also a flame of a lamp was put under the palm of her hand, yet she felt nothing. The pharynx was also proven to be anæsthetic.

Professor Vizioli desired to demonstrate by this experiment the existence of an hypnotism induced by somatic characters, as an organic form of neurosis, distinct from the neurosis due to psychical causes, —that is, by means of suggestion. He wanted to demonstrate that in determinated subjects the three stages naturally follow each other, without imposition of an external will, and with particular characters of flexibility, of muscular and nervous contractility, which, indeed, characterize the spontaneous nature.

Several other cases were reported to the society and discussed. The work of the Congress being ended, President Baccelli, after a neat speech of thanks, adjourned the meeting to 1889, to meet again in Rome on October 15, 16, 17, and 18.

Professor Guido Baccelli was again elected president; Professors A. Cantani, and A. Murri, vice-presidents; E. Maragliano, secretary, and E. Rossoni, treasurer.

Last Sunday, October 28, two monuments were dedicated at Milan. One was dedicated to the memory of the late Dr. Gaetano Pini, the founder of the Milan Rachitic Institute, of the Italian Society of Hygiene, and of the Cremation Society. The other was dedicated to the late Dr. Agostino Bertani. He was a patriot, a follower of Garibaldi, and took part in all the principal battles for the independence of his country. He was the author of an important sanitary codex, which has been unanimously approved at the last session of the Italian parliament. Both men have been deeply mourned as a great loss to their country, to humanity, and to science.

A. LAGORIO, M. D.

CHIAVARI, ITALY, October 31, 1888.

OBITUARY.

DR. H. D. SCHMIDT.—All readers of the *Journal and Examiner* will learn with deep regret of the death of Dr. H. D. Schmidt, of New Orleans. His valuable papers have been among the very best contributions to this journal. Though a great physical sufferer and in straightened pecuniary circumstances, he has, for years

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carried on, unaided, investigations which rivaled the best laboratory work. In many departments of histology and pathology his name will not soon be forgotten. Some few, perhaps, will appreciate how much this cost. We have plenty and to spare of men of worldly wisdom and business acumen, but we cannot afford to lose one of his spirit. Peace to his ashes. L. C.

PROFESSOR H. B. SANDS, M. D.—In the death of Dr. H. B. Sands, at the comparatively early age of fifty-eight, New York loses her most prominent surgeon. As a teacher, his lectures were clear and forcible, and occasionally spiced with genial and clean humor. He was justly popular with his classes. He had a large professional experience, his judgment was excellent, and he was a good and, what is more, a conscientious operator. His acquirements covered all that was within easy reach. He used well what others had gained and what was well known and certain, without worrying about the unknown or doubtful, or contributing much himself. An able, safe, and conservative practitioner, he reaped the reward of his wise expenditure of strength in gaining a high social position, many warm friends, and a large and lucrative practice. L. C.

EXTRACTS AND ABSTRACTS.

WHEN AND HOW SHOULD DIGITALIS BE PRESCRIBED?

Dr. Henri Huchard, the distinguished clinician of Paris, has recently written a *brochure* in answer to these questions, from which we abstract the following:

One of the most important things in connection with the administration of digitalis is the cumulative action of the drug; and the following rule should be adhered to. Since the doses of digitalis add up, as it were, the drug should be prescribed in decreasing doses, and its administration should not be continued in large doses for more than four or five days. Beside the cumulation of action, there is also cumulation of dose, which Gubler defines as follows: Cumulative action is the storing of the drug in an organ (the stomach or intestine), cumulative dosage is the storing of the drug in the organism. From this must be deduced the practical conclusion that drugs that have cumulative action should be given, in so far as possible, in liquid form.

Huchard says that he very rarely has any of the unpleasant effects that are so often seen from the administration of digitalis, and that the reason is that he never violates the rules that should govern the administration of the drug. The disagreeable effects of the drug do not appear while œdema persists. While digitalis cures asystolism, it may cause a kind of toxic asystolism. Among its disagreeable effects may be mentioned a pseudo-angina, which must be distinguished from precordial anxiety, and from true anginous attacks in subjects of angina, provoked by abuse of digitalis. The most important of these effects, however, are those produced on the side of the digestive tract. The precocious vomiting caused by digitalis is due to the topical action of the drug on the gastric mucous membrane; the later vomiting comes on in about twenty-four or forty-eight hours after the administration of digitalis in large doses, and is caused by toxic action. The numerous bad effects ascribed to digitalis may dismay the practitioner, and cause him to deprive himself of one of the most useful of drugs. Much can be learned, however, from a careful reading of Huchard's answer to the question.

When should digitalis be prescribed? In answering this question Huchard takes up *first*, cardiac affections, and discusses the administration of digitalis according to the period of the heart disease.

Digitalis should not be given in the early phases of what Huchard calls arterial cardiopathies. For a long time he

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has insisted upon the capital distinction between valvular and vascular or arterial cardiopathies. The latter are nothing else than the localization of the arterio-sclerosis on the heart; they are characterized, during the greater part of their evolution, by a more or less considerable increase of arterial tension, which is the cause, not the effect, of the sclerosis. Now, in the first periods of arterio-sclerosis of the heart may be recognized all the symptoms of hypersystolism just described, and digitalis should be given, if at all, only with the greatest caution, since by increasing vascular pressure it may lead to cerebral hæmorrhages, and by it, also, the nocturnal palpitations are increased, dyspnœa becomes more intense, and anginous attacks may be provoked.

At an advanced period of cardiopathies, one often finds albumen in greater or less quantity in the urine. This is not an absolute contra-indication to the use of digitalis. The dangers of the administration of active medicines in renal affections have been much exaggerated, though there are certainly some dangers. But they demand prudence, not the doing away with drugs. That digitalis can be safely used in these cases is probably due to the fact that it is not eliminated by the kidneys, as was shown by Lafon some two years ago. While albuminuria is not positive contra-indication to the use of digitalis, therefore, it should be used with caution in these cases, in moderate doses for two or three days, and its action should be carefully watched. Used on these principles it may diminish or cause to disappear certain forms of albuminuria, when it is of cardiac origin, or produced by passive congestion of the kidneys, in the absence of any sclerous or other lesion.

In giving digitalis in valvular lesions, the seat of the lesion is sometimes of importance in indicating the drug. In aortic stenosis, for example, we know that the cardiac contractions and the pulse are slow. Then why should we give a drug that will slow them still more? By doing this we expose the patients to the dangers of digitalism. In aortic insufficiency the diastolic rest of the heart is already long enough; digitalis makes it longer, and increases the already high arterial tension caused by the disease. Why add to the injurious effects of the heart disease? In mitral insufficiency it should be prescribed only in cases of great cardiac irregularity, or of confirmed hyposystolism. In pure mitral stenosis it often causes bad effects. It should not be forgotten that mitral and aortic stenosis are the two cardiopathies that may remain latent for a long time, and require treatment late. In aortic affections, and especially in Corrigan's disease, digitalis is often contra-indicated for a long time. It raises arterial tension in an affection in which this is already exaggerated; by increasing the suddenness of the systole it gives to the blood-waves violent and repeated oscillations, which, added to the high tension, may cause cerebral hæmorrhage; it prolongs the already augmented diastolic period; finally, it contributes, by its vaso-constrictor action, toward increasing the visceral and peripheric anæmia caused by the disease. In aortic affections more than in any other, is it wrong to localize the lesion at the aortic valve, and then to take no account of the localization in the treatment.

But, says Huchard, the knowledge of the orifice affected is of secondary importance only for the indications for the drug. The therapeutic indications must be found in the cardiac muscle, as has been admirably expressed by Stokes. The situation of the cardiac souffle, its intensity and its absence, furnish no indications for the administration of digitalis; it is the state of the heart muscle and of the vessels, their feebleness (cardio-vascular asthenia) and asystolism, that demand digitalis. There exists in all cardiac affections a period intermediate between hypersystolism and asystolism, which Huchard calls hyposystolism. Suppose we have a patient in whom some months

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ago there were all the signs of normal or even exaggerated compensation; the precordial shock was strong, vibrating, and well limited, the apex beat slightly lowered, urine normal in quantity, no trace of visceral congestion, and no œdema of the limbs. This patient now comes with slight perimalleolar œdema in the evening, becomes breathless easily, and has palpitations and a sensation of fullness of the chest. Examination shows slight congestion of the liver, which is painful on pressure, and pulmonary hyperæmia and œdema; the cardiac contraction is soft, unequal, and irregular, the impulse more extended, more diffuse, less sensible, the apex displaced, and cardiac dullness increased transversely; the first sound of the heart is more or less dulled or weakened, the second a little loud in the region of the pulmonary orifice and to the right of the sternum. The pulse is feeble and undulating, the jugulars swollen and prominent, and the urine scanty. In this case there should be no hesitation about prescribing digitalis, for there are three capital indications—feebleness of cardiac contractility, lowering of arterial and increase of venous pressure, and scanty urine, coexisting with peripheral œdema or visceral congestion.

The urine furnishes indications for the administration of digitalis; if it becomes uratic, and falls below 800, 500, or to 200 grammes a day, digitalis should be given. In giving digitalis in heart affections we should examine the urine as carefully as we do the thermometer in fevers.

In either asystolism or hyposystolism there may be three causes of error in regard to the contra-indications of digitalis: 1. The cardiac beats may be tumultuous and violent, the impulse of the heart becoming energetic for a few moments; but examination a few moments afterward may show that the energetic systoles are followed by weak or aborted and precipitate ones, constituting the cardiataxic asystolism of Gubler. Digitalis should here be prescribed as a tonic and a regulator. 2. We may have a patient in whom the dilatation of the cardiac cavities strikes against the thin and emaciated chest walls, giving the false sensation of energetic and violent beats. Here the clinical error is doubled if a therapeutic error be made by withholding digitalis on account of supposed exaggerated compensation. 3. In asystolism the dilated right heart is in immediate relation with the thoracic wall; if it lie close to the diaphragm the beats may be communicated to the whole epigastric region. The extent of these beats is no indication of their force; they will be found feeble, undulating, and scarcely appreciable, and digitalis should be prescribed.

To recapitulate with regard to valvular lesions: Digitalis is useless in the period of eusystolism, when the lesion is compensated; it is injurious in the hypersystolic period, when the compensation is exaggerated; it is efficacious in the hyposystolic or period of transient asystolism, when the cardiac muscle and the vessels are suffering from asthenia, and when there are œdemas, visceral congestions, dropsies, and the heart beats softly and feebly; in the period of definite asystolism, or of amyocardia, when the cardiac muscle is profoundly degenerated, digitalis is sometimes useful; it may be useless, or it may be injurious. It is in these cases that caffeine in large doses sometimes gives such signally good results.

What of the use of digitalis in palpitations and tachycardia? Arterial hypertension is not always a contra-indication to the use of the drug. In a certain state of cardiac ataxia digitalis is a true regulator of the heart before being an excitor of arterial tension and before being a tonic to the heart. Let us take the case of a mitral patient in the hyposystolic or asystolic period. The pulse is small, miserable, soft, depressible, and irregular; the blood-waves are feeble, unequal, and insufficient; the precordial shock is scarcely appreciable, and the ventricular contractions are

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tremulous and abortive, constituting the flutterings of the heart that Stokes speaks of. But in the midst of these weak and debilitated systoles occur violent, tumultuous, and precipitate beats—a veritable state of cardiac ataxia. These palpitations do not always signify increased cardiac work. In palpitations in the hypersystolic period, digitalis is injurious; in the hyposystolic period it is useful.

Tachycardia is often confounded with palpitation of the heart. Digitalis is inefficient in the various forms of tachycardia, says Huchard

Cardiac arythmia may be classified as valvular arythmia, myocardiac, reflex, toxic, and nervous arythmia. Digitalis may be used in the first, the second is rebellious to its action, and the other three should have causal and hygienic treatment.

Two varieties of cardiac psuedo-asthma must be recognized—one seen in valvular cardiopathies, the other in arterial cardiopathies. In the first, digitalis is useful; in the second, the patient must have an exclusive milk diet for from two to four weeks.

In arterio-sclerosis of the heart, digitalis alone is contra-indicated. It may be combined with nitro-glycerine. Distilled water, 300 grammes; tincture of digitalis, 3 grammes; alcoholic solution of nitro-glycerine (au centième) gtt. xxx. Dose, two to six tablespoonfuls a day. For angina pectoris, digitalis is always contra-indicated. It some anginous cases it may be given, however, for the hyposystolic symptoms. In these cases, digitalis should be combined with nitro-glycerine or with iodide of sodium, as, iodide of sodium, 4 grammes; powdered digitalis, 2 grammes; glycerine, q. s. to make 40 pills. Take three or four a day for from five to ten days.

In the cardiac hypertrophy of puberty, and the menopause, digitalis may be given in sedative doses—small doses; in these cases preference should be given to arterial tension-depressors.

In nephritis and asystolism of renal origin, digitalis may be guardedly used in chronic parenchymatous nephritis. It should not be used in the early stages of interstitial nephritis; in the later stages, when the heart fails, and other symptoms indicate, the following may be used: Distilled water, 300 grammes; benzoate of soda and caffeine aa, 5 grammes. Dose, four to six spoonfuls a day.

In aneurism of the aorta Huchard used some such formula as: Distilled water, 300 grammes; iodide of sodium, 20 grammes; thebaic extract, 0.05 centig. Take from two to four or five tablespoonfuls a day before meals, in a little beer. Continue during twenty or twenty-five days every month. Or, distilled water, 300 grammes, alcoholic solution of nitro-glycerine (au centième), gtt. xxx. Dose, three to six tablespoonfuls a day. Lessen the dose if it causes headache.

In the first stages of exophthalmic goitre, digitalis is often useless, sometimes injurious. Later, when the heart is temporarily or permanently enfeebled, digitalis is indicated.

In the fever of endocarditis, and the phenomena of cardiac erethism, aconite should be combined with digitalis. Tincture of digitalis, 6 grammes; tincture of aconite root, 4 grammes. Take six drops three or four times a day. In the paralytic form of pericarditis (Jaccoud), tincture of digitalis may be used in doses of twenty to forty drops a day, or the infusion may be used.

In senile pneumonia and bronchitis, digitalis or caffeine must be used. Digitalis has some disadvantages. Tanret uses the following formula, as does Huchard: Benzoate of soda, 3 grammes; caffeine, 2.50 grammes; distilled water, 6 grammes. Make the solution warm. Inject subcutaneously a quantity containing 0.25 centig. of caffeine.

The following are some of the ways in which Huchard prescribes digitalis:

Alcohol (90°), 3 grammes, 50.

Homolle's amorphous digitaline, 0.02

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centig. S.—Take ten drops—which contain one millig.

The following is for subcutaneous injection:

Homolle's amorphrous digitaline 0.10 centig.
Alcohol..... ....25 grammes.
Water .....25 grammes.

Ten drops contain one millig. of digitaline. Inject deep twice a day into the muscular portion of the back.

Beaujon's oxymel diuretique—to give tone to the vessels and heart, act on the kidneys, and calm cardiac excitability.

Alcoholic tincture of digitalis...
Aqueous extract of ergot aa...10 grammes.
Gallic acid..... 5 grammes.
Bromide of potassium.....
Cherry-laurel water aa.....30 grammes.
Sirup of cherry.....400 grammes.
Oxymel of squills.....515 grammes.

Dose, two to three spoonfuls a day in water.

Diurectic and laxative powder:

Powdered sulph. of potash.....
Soluble cream tartar.....
Powdered nitrate of potash aa..6 grammes.
Powdered digitalis leaves..... 1 gramme.

Make 20 powders. One, three times a day.

Chomel's pills (for albuminuria with anæmia):

Powdered squills.....
" digitalis aa.....5 grammes.
Porphyrized iron.....4 grammes.

Make 40 pills. Take from two to six a day.

Diuretic and hydragogue pills:

Digitalis.....
Squills .....
Scammony aa .....3 grammes.
Sirup of gum..... q. s.

Make 100 pills. Take from two to six a day.

EXOPHTHALMIC GOITRE CURED BY TREATING THE NOSE.*

At a meeting of the Berlin Medical Society, January 18, 1888 (*Berliner Klinische Wochenschrift*, 1888, No. 6), Professor Fränkel reported a case of Basedow's disease which seemed to depend on hypertrophy of the nasal mucous membrane and was cured by cauterization.

The patient was a young man, seventeen years old. There was a considerable enlargement of the thyroid, and a pulse of 120 beats a minute. After having been treated for some time for these symptoms, he incidentally called attention to a narrowing of his nasal passages, which was so great as to interfere with his breathing. The galvanocautery was applied to the inferior turbinated bone on the left side. This was followed by a marked diminution in the frequency of the pulse and by a disappearance of the goitre on the left side. Three weeks were allowed to elapse, during which no change was discovered in the patient. The pulse rate, though slower than before, was still abnormally fast, and no change occurred in the goitre. The right side was then cauterized in the same way as the left when, almost immediately, the pulse sank to normal and the goitre disappeared.

Professor Fränkel mentioned "one case, described by Hack in the year 1886, in which Basedow's disease had been cured by treatment of the nose." This report has called out a paper by Dr. Hopmann, (*Berliner Klinische Wochenscrift*, 42), in which he calls attention to a similar case reported by himself in 1885.

It would seem hardly necessary to trouble the reader with the theoretical points discussed in the paper, but the history of the case is so interesting that we give it entire.

"Mrs. Hamacher, forty years old, came under my treatment on the 11th of October, 1883, on account of a secretion of mucus in the throat, an inclination to hawk, together with cough and occasional dis-

*Berliner Klinische Wochenschrift, Nos. 6-42. Abstracted and translated by Dr. Lester Curtis.

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charge of masses of firm secretion. At the same time she complained of an uncommonly great prostration, and weakness in the legs, palpitation, of the heart, and pain in the eyes, especially the right. The painful pressure and tension in the eyes are accompanied by discharge of tears. These symptoms have continued uninterruptedly for two years. Drying the face with a towel occasions an almost unendurable pain in the eyes, especially in the right; therefore, she has stopped touching the eyes when washing the face. She has often the appearance of motes and clouds before the eyes. At night there appear sparks. There is also right-sided pain in the forehead.

"The expression is peculiarly staring. Pressure upon the eyeballs, of which the right is especially prominent, is extremely painful. The pulse is 120 to 126. There exists rhinopharyngitis sicca, with extensive accumulation of scabs in the nose and roof of pharynx—on the right side much more severe than on the left. On account of the trouble with the eyes, I sent the patient to the Cologne eye clinic where Dr. Samelsohn asserted the perfect soundness of the dioptric apparatus and the retina; still, he showed that on both sides, and especially on the right eyeball, Gräfe's symptom [want of correspondence of the motion of lid and eyeball when looking down] could be demonstrated in a very striking manner. The exophthalmus in connection with this; the very marked angina; and the general feeling of weakness, especially in the lower extremities, as well as the absence of all other local causes for the protrusion of the eyeballs, left no doubt that we had to do with those complex symptoms which we are accustomed to designate Basedow's disease, although there was no appreciable swelling of the thyroid gland.

"I will call attention to the fact that we have here an incomplete form of Basedow's disease, if we compare it with the complete form, which presents three symptoms—exophthalmus, rapid heart, and goitre, since in this case one of the symptoms is lacking. However, according to Von Bamberger, even two of them may be lacking. Von Bamberger says in regard to this: 'There are cases which continue for years with only the symptom of palpitation of the heart; others with only enlarged thyroid; others with only the symptoms in relation to the eyeballs—the exophthalmus depending upon the dilatation of the retro-bulbul blood vessels.'

"In my case the appearance of goggle-eyes was distinctly marked on the right side only, while it existed on the left side in a much less degree.

"As I have repeatedly had the experience that obstinate eye symptoms have improved from the instant in which a nasal affection, up to that time neglected, has been benefited by appropriate treatment, I turned my attention in the treatment of my patient to the quite marked rhinopharyngitis sicca. I have treated these cases for many years by the insertion of strips of cotton batting; indeed, I had already used this treatment for some time before Gottstein (1878) published his valuable communication on the use of tampons in ozœna. Since Gottstein's publication, I have extended this treatment to ozœna proper, where it is of more benefit than any other.

"In our patient there was no ozœna, only a very considerable atrophy of the mucous membrane, with a discharge of pus which was not fetid. As a result of the latter and a considerable enlargement of the nasal passages, the secretion dried in scabs and collected especially in the naso-pharynx and the roof of the pharynx, and was cast off with difficulty every few days. After the scabs were softened and removed, by the use of cotton for several days, there was a certain improvement in the pain in the forehead, the discharge of tears, and the painful feeling upon pressure in the right eyeball. I now found, on thorough investigation, that in the right nasal cavity there were small mucous polypi hanging

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between the atrophied middle turbinated bone and the ethmoidal cells, passing off probably from the latter. In the course of the next few days I removed three of these, of the average size of a coffee-bean.

"After this operation, a striking improvement of most of the symptoms was noticeable. The patient stated that the improvement followed almost immediately upon the conclusion of the operation. The pulse fell from 120 to 130 beats, to from 90 to 100. Pressure upon the right eyeball was not so painful as formerly. The general condition improved markedly. The patient felt herself far stronger and fresher than before.

"In the beginning of November, Gräfe's symptom, though still plainly evident on the right side, had disappeared from the left.

"On the 10th of November I noted 'absence of the muscæ volitantes, appearance of sparks in the dark, and pain on pressure in the right eyeball; exophthalmus disappearing; pulse, 92–100.'

"On the 20th of November, Dr. Samelsohn affirmed an equally marked improvement.

"Eight days later, Gräfe's symptom could be no longer detected on the right side, and the closure of the lids was normal; no feeling of pressure in the eyes or forehead; pulse, 88-92.

"Patient can wash and dry the face without experiencing the least unpleasant symptom. The insertion of cotton was continued.

"On the beginning of April, 1885, after a year and a half, the patient consulted me again, because she had been again troubled for some months with mucous secretion in the pharynx. She had been feeling entirely well and had begun to give up the use of the cotton; at least, she had used it quite irregularly, so the drying of the nasal and pharyngeal mucous membrane, as well as the collection of scabs, began to appear. Nevertheless, pain in the eyes had not appeared, nor an excessive secretion of tears or other difficulty in the eyes. Polypi had not returned; protrusion of the eyeballs was not present; pulse, 92.

"While she was in this general condition, I showed her to the general medical society here* on the 21st of April, 1885. After that time the patient was for a short time, in June, 1886, under my treatment. She complained then that for about six months she had been troubled with muscæ volitantes, clouds, and at night, the appearance of sparks. For eight days the power of vision had failed markedly, so that she was now nearly blind; she also felt weak and miserable. The eyes began to pain her again and to weep, and a 'wirr' occurred in her head whenever she strained her eyes in an attempt to see. The eyes are somewhat prominent, but Gräfe's symptom can not be produced plainly. Palpitation of the heart is occasionally present. Pulse, 96; no goitre. Fleeting pains in the back and extremities. No cotton has been used for eight months. She suffers much from dryness in the throat and hawks up almost every morning a mass of thick mucus. Polypi have not returned. Rhinopharyngitis sicca.

"The symptoms soon became better under the use of cotton, and it was scarcely two weeks before the patient could see quite well again.

"We have had to do, therefore, with a slight return of the eye symptoms in connection with, and dependent upon, an aggravation of the nasal trouble, which disappeared with the improvement of the latter."

OHIO SANITARY ASSOCIATION.

THE SIXTH ANNUAL CONVENTION AT CANTON, AND WHAT WAS DONE.

The sixth annual convention of the Ohio State Sanitary Association was held at Canton, Ohio, November 14 and 15. Among the members present were Dr. G. H. Ashmun, Cleveland; Dr. Byron Stanton, Commissioner of Health, of Cincinnati; Dr. D.

* Cologne.

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E. Snyder, Scio; Professor A. W. Smith, Cleveland; Dr. C. O. Probst, Columbus; Professor Cady Staley, of the Case School of Applied Science, Cleveland; Henry Wood, Cleveland; Dr. T. Clark Miller, Massillon; Dr. R. Harvey Reed, F. C. Bodine, Dr. J. W. Craig, Mansfield; Dr. H. Hendrixon, Columbus; H. E. Beebe, Sidney; Dr. W. W. Pinnel, Frederickstown; Dr. A. T. Quinn, Wilmington; Dr. Thomas H. Hubbard, Toledo; Dr. John McCurdy, Youngstown; Dr. E. R. Eggleston, Mount Vernon; Professor E. A. Jones, Massillon; H. E. Daykin, Cleveland; Dr. J. C. Fahenstock, Piqua; Thomas W. Gordon, Georgetown; Dr. James Boles, Alliance; and Drs. Lewis Slusser, Josiah Hartzel, J. Whitny, C. N. Lyman, and others, of Canton.

President Ashmun occupied the chair, with Dr. R. Harvey Reed as secretary.

The reports of standing committees were called for, when Dr. T. CLARK MILLER, chairman of the legislative committee, stated that a great advance in the interests of sanitation had been made by the passage of a law by the Ohio Legislature compelling the organization of a board of health in every city and town containing more than five hundred inhabitants. He thought it was highly necessary that the people should be educated in sanitary matters.

Dr. D. H. BECKWITH, of Cleveland, was an ardent advocate of free speech, and his motion that all papers read before the association be immediately discussed was carried.

Dr. R. HARVEY REED then read a paper on the "Prevention of Typhoid Fever."

In the discussion which followed, Dr. G. C. ASHMUN, of Cleveland, said that typhoid fever often made its appearance under similar circumstances in which diphtheria had prevailed in the same locality the year before, and that, when typhoid fever prevailed, it was always with bad sanitary surroundings.

Dr. BYRON STANTON, of Cincinnati, thought there was no disease so easily prevented as typhoid fever, except, perhaps, small-pox. Last year the disease prevailed to an unusual degree in Cincinnati, no doubt caused by the city's water supply, which was taken from the Ohio River. As soon as the people commenced to boil the drinking water and that used for culinary purposes the affliction disappeared.

Dr. D. H. BECKWITH, of Cleveland, said: If we keep on with our germs and sanitary inspectors we will have to give up our ice-water and many of our foods for fear of them.

Dr. T. CLARK MILLER, of Massillon, said typhoid fever is simply a filth fever, and to avoid it was not to know whether it was produced by a germ or not, but to teach people to avoid all filth.

At the afternoon session the subject came up again.

Dr. REED believed that typhoid fever was propagated by a specific germ that was destroyed by boiling.

Dr. JOHN MCCURDY, of Youngstown, Ohio, said that he did not believe that boiling water or cooking food alone would prevent typhoid fever, but that personal cleanliness was a large factor in its prevention.

Dr. JOSIAH HARTZEL then read a paper on "Canton's Water Supply."

In the discussion which followed, Dr. MCCURDY said that he thought that artesian wells were of a very questionable character, but when a city could get a pure supply of water from an artesian well it was exceedingly fortunate. Youngstown, he said, was contemplating a filter system, but found it too expensive. They finally decided to get Pasteur filters and put them in the houses, furnishing them to the people at cost.

Dr. G. C. ASHMUN said that he had tested a large number of filters, but found it impossible to free the water of germs.

Dr. REED said that Dr. Sternberg stated that he had tested this filter for germs and found it proof against them when clean, but not when dirty.

"The Relation of the Work of the School to the Health of the Child" was the

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subject of a paper by Professor E. A. JONES, of Massillon. It was discussed by Dr. Eggleston, of Mount Vernon; Dr. Reed, of Mansfield; Dr. Miller, Dr. Ashmun and Dr. McCurdy.

Dr. E. R. EGGLESTON followed with a paper on "Meteorology as Related to Morbidity," which was discussed by Dr. Beckwith.

Dr. McCurdy presided at the evening session. The Hon. John F. Blake, mayor of Canton, briefly welcomed the association to the city, and President Ashmun responded on behalf of the association.

Dr. Miller, Dr. Reed, and Dr. Slusser were appointed to consider and report upon a suggestion of the president in regard to the association becoming auxiliary to the State Board of Health.

Dr. THOMAS HUBBARD, of Toledo, then read his paper on "Hot Air *vs.* Steam for the Heating and Ventilation of Dwellings," which provoked considerable discussion.

Dr. MCCURDY said that Youngstown had tried both steam and hot air, and he thought the latter the best.

Dr. ASHMUN stated that Cleveland had tried to utilize the cold air shafts for the dry-closet system, but failed for two reasons: First, that they were not high enough; and second, because they had too many air-draughts in them. Since these defects had been remedied, however, the system was working satisfactorily.

Dr. REED stated that he had studied heating and ventilation for years, and he preferred the warm air as the best and cheapest.

"Is it a good idea to put in a dry closet when there is a sewer system?" asked some one in the audience.

"If it is a school-house I would, but if a private dwelling I would use the sewer," the doctor replied.

Mr. BOUR, of Canton, opposed the system. "It fills the air with poisonous germs and the rooms with obnoxious smells."

Alexander McGregor thought the system a failure. He thought it wrong to imperil the health of the children by its use. Not only this, but it had been decided upon for a number of new buildings without those pushing the matter waiting to see whether it were true or false. He appealed to the people of Canton if the system was not a failure, and putting the system in other buildings under the circumstances was a mistake.

At the Thursday morning session Professor J. J. BURNS, principal of the Canton schools, read a very entertaining paper on "Contagion of Health." It was not the conventional scientific dissertation, but happy, brilliant, and original.

This was followed by a paper on "Sewers for Small Towns," by Professor CADY STALEY. At the conclusion of the paper the subject was discussed by Dr. McCurdy, Dr. Ashmun, Mr. Wood, Dr. Stanton, and others.

Professor ALBERT W. SMITH followed with a paper on "The Water Supply of Cleveland."

At the request of the committee having the matter in charge it was decided to postpone the consideration of the motion made in a previous session, to the effect that the association become auxiliary to the State Board of Health.

The nominating committee made its report at the opening of the afternoon session. They named the following, who were duly elected as the officers of the association for the ensuing year:

President, Dr. D. M. Beckwith, Cleveland.

Vice-Presidents, Josiah Hartzel and Dr. Lewis Slusser, Canton, and Professor E. A. Jones, Massillon.

Secretary, Dr. R. Harvey Reed, Mansfield.

Treasurer, Dr. M. J. Weaver, Dayton.

Later, the newly-elected president announced the standing committees for the year:

Executive Committee—M. J. Weaver, M. D., Dayton: W. J. Conklin, M. D., Professor J. J. Burns, Canton; H. E. Beebe, M. D., Sydney; Professor E. T. Nelson, Delaware.

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Committee on Publication—R. Harvey Reed, M. D., Mansfield; J. C. Ashmun M. D., Cleveland; S. H. Brundage, M. D., Xenia.

Committee on Membership—John McCurdy, M. D., Youngstown; James Allison, Cincinnati; W. S. Cretchen, M. D., Bellefontaine; G. A. Collamore, M. D., Toledo.

Committee on Legislation—C. C. Probst, M. D., Columbus; T. Clark Miller, M. D., Massillon; L. C. Herrick, M. D., Columbus; Byron Stanton, M. D., Cincinnati; E. R. Eggleston, M. D., Mount Vernon.

"Heating and Ventilation" was the subject of a brief paper by FRANCIS C. BODINE, of Mansfield, which was read and discussed.

Dr. LEWIS SLUSSER followed with a paper on "Fraud in Dressed Beef," in which he said that much of it was unfit for use. That the cattle were frequently suffering from disease when killed, and the meat when it arrived at its destination was frequently sticky and contained accumulations of pus.

Dayton was decided upon as the next place of meeting, while the time was to be fixed by the executive committee. Some of the members desired that the meeting be held as near Columbus as possible, that the members of the State Board of Health might be able to be present. One of the members stated that the association was the oldest and only organization of the kind in the State, and at this, its sixth annual convention, one member of the State Board of Health was present. Another gentleman said that while he would like to have the members of the State Board of Health present, and desired that they be invited, he did not believe in importuning the members to attend.

Dr. Ashmun then presented Dr. Beckwith, the newly elected president, to the association. The doctor said that he esteemed it a very high compliment. He referred briefly to the career of the organization, and said that he would do all he could to make the year a profitable one to the members and the next meeting at Dayton a success.

The citizens of Canton returned a vote thanks, on motion of Mr. Hartzel, to the members for meeting at that place, and the association adjourned.—*The Sanitary News.*

ARTIFICIAL AND NATURAL WATERS.

AMERICAN MINERAL SPRINGS—FRAUDULENT IMPORTATIONS AND SPURIOUS CLAIMS.—Dr. Enno Sander, of St. Louis, in *The National Bottlers' Gazette*, says of domestic and foreign waters:

The United States of North America have a remarkably diversified climate; they are blessed with a wonderful variety of the finest natural agricultural and horticultural products, and their mountains not only harbor in their bowels an enormous mineral wealth, but from their interior flow an endless variety of mineral waters, and a very large number of all sorts of the most valuable mineral springs. Our present knowledge of the entire surface of the country is but limited; but two years ago, the U. S. Geological Survey had already reported 8,843 individual springs in 2,822 localities, of which 787 had been analyzed, and 634 used as resorts for recreation and health, but only 223 commercially. They represent every variety of mineral waters, from the pure alkaline to the strongly purgative, impregnated with large quantities of saline ingredients, and thermal springs with a temperature ranging from 90° to 200° Fahr.

There are springs so pure that they contain but a small fraction of a grain of solid substances in one thousand grains of water; others which are strongly and fully impregnated with mineral ingredients of great medicinal value; while again others present, in the perfect composition of solids with gases and water, such an excellent combination as to render their taste exceedingly agreeable and refreshing. Under a careful and circumspect management they could be, and, to some extent, have already been, utilized as very

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popular resorts. Many of them, with beautiful surroundings and bountiful fresh air, offer to the sick or worn out a desirable spot, where body and mind may gradually recuperate from their infirmities, and the impaired faculties ultimately restored to their original health.

While it is granted that thousands and thousands of our fellow-countrymen and women avail themselves annually of the advantage offered to them in our own country, how is it that with all this bountiful wealth at home, foreign watering places are filled with, and almost sustained by, visitors from this country, and our markets annually over-flooded with an enormous quantity of European bottled waters? According to the "Statistical Trade Review" of the *National Bottlers' Gazette*, there were imported during the first six months of the present year, 1,564,322 gallons of mineral waters, or over 60,000 gallons more than during the same period of last year, and all of it was passed free of duty as "natural mineral water." What can be the cause of this remarkable phenomenon? Is the foreign product of a quality superior to our own? or are the majority of our people not aware of the excellent qualities of our own waters and the wonderful quantity of our natural wealth?

BOTTLED MANUFACTURED WATERS.—The average American citizen is conservative; he loves his country above all; he desires to develop its resources as fast as it can be done, and cheerfully supports every enterprise tending to this end; but it seems that he has not yet been sufficiently informed in regard to the importance of this mineral water question. The most beneficial use is made of natural mineral water at the spring itself, where all its qualities are unimpaired, and its full benefits can be enjoyed. But "many diseases do not admit of delay, and for this purpose the bottled waters are applicable. However, there is not the care used in bottling waters that should be observed. There are but few waters that are at all adapted to shipment; the gases escape, and some of the chemical ingredients are decomposed" (George E. Walton, M.D., "The Mineral Springs of the United States and Canada," 1883, p. 113). Besides these facts, it has been ascertained by careful and often repeated observations and analysis that mineral waters (especially those exhibiting a high temperature, and those containing sensitive metallic and earthy oxides, which are promptly affected by the oxygen of the atmosphere and converted into insoluble dioxides) are readily decomposed, and deposit some of their solid ingredients almost as soon as the water has issued from the earth. It is evident that in such cases the waters are not adapted to bottling, and the public should be warned against the acceptance of assurances, which always are readily made by the salesmen, that the bottled waters contain all the solid ingredients of, and are, therefore, equal to, the fresh waters of the springs. "Prompted partly by scientific interests, and partly by the desire to offer to sufferers, who live long distances from mineral springs, an opportunity of enjoying their beneficial action, efforts were made to reproduce these waters by artificial process. * * * And, in the course of time, this end has been attained with such perfection as to permit the artificial product of to-day to place itself alongside of and compete in every respect with the natural mineral waters" (Liebig's Chemical Dictionary, 1851, Vol. V., p. 320).

THE CAUSATION OF COLD-WEATHER DISEASES.

Henry B. Baker, M. D., Secretary of the Michigan State Board of Health, in an attempt to explain the causation of inflammations of the air-passages, and the seasonal susceptibility to certain communicable diseases which are shown to be most

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prevalent in cold weather, has drawn the following conclusions:

1. That diphtheria, scarlet fever, and small-pox increase after the atmosphere is cold and dry, and decrease after the atmosphere is warm and moist.

2. That the three communicable diseases named above probably generally enter the body through the air-passages, and that the reason why they increase after the cold months is because of the greater susceptibility of the air-passages in those months; that this is the reason why the curves for these communicable diseases are found to follow the curves for influenza, tonsilitis, and bronchitis.

3. That the non-volatile salts of the blood exuded in excess into and upon the mucous surfaces of the air-passages are capable of leading to an inflammation which is called "influenza," "tonsilitis," or "bronchitis," according to the portion of the respiratory tract involved.

4. That, other things being equal, the non-volatile salts are left by evaporation on the mucous lining of the air-passages in proportion to the dryness of the air inhaled.

5. That, inasmuch as the absolute dryness of the air ordinarily depends upon its coldness, the inflammations of the air-passages should be expected to rise as they do after the cold dry weather, and fall after warm moist weather.

6. That the non-volatile salts are likely to be in excess in the blood under some conditions of diet, or non-action of the skin or kidneys through which, under normal conditions, they pass out of the body. Therefore,

7. That certain kinds of diet, or non-action of the skin or kidneys, may predispose to inflammation of the air-passages, and consequently to any communicable disease, which enters the body by way of the air-passages, to which the person may be susceptible.

8. That, aside from the cause herein assigned (non-volatile salts), no other known cause, capable of causing inflammation of the air-passages, is "present and acting" in proportion to the coldness and dryness of the atmosphere.

In connection with the foregoing, a few supposed facts, not entirely outside of the province of this paper, should be held in mind because they tend to modify the force of the evidence herein presented:

a. Vaccine virus (and, therefore, possibly the virus of the cold-weather communicable diseases) retains its vitality longer in cold than in warm weather.

b. The danger of contracting a communicable disease is probably increased by exposure to the contagium in a badly-ventilated room, and rooms are most frequently badly ventilated during the cold weather.

But neither of these two statements is known to be true so nearly in proportion to the temperature of the atmosphere as to explain the close correspondence with which the curves of these diseases follow the curves representing the temperature of the atmosphere. And since it is proved in this paper that the ordinary inflammations of the air-passages also follow the rises and falls of the atmospheric temperature, and are believed to be non-contagious, their equally close correspondence with the temperature changes can not be accounted for by the varying degrees of vitality of a virus, nor by bad ventilation, especially as they are so frequently traced to exposure to cold outdoor atmosphere.

9. That, so far as is yet proved by statistics of large numbers of cases, the strongest controlling cause of inflammatory diseases of the air-passages is exposure in a cold, dry atmosphere.

10. That, excepting inoculation and other similar exposure to the specific cause of the disease, the strongest controlling cause of the spread of those comunicable diseases which generally enter the body through the air-passages is exposure in a cold, dry atmosphere.

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THE PATHOGENESIS OF EPIDEMIC DIPHTHERIA.

Review of a recent work on the subject, considered from a histological standpoint, by Dr. M. J. Oertel, professor at the Munich University; with atlas of sixteen chromolithographic tables. Leipzig: F. C. W. Vogel. 1887. Translated from the *Correspondenz-Blatt für Schweizer Aerzte*, Beilage No. 17, September 1, 1888, by Dr. James I. Tucker.

Though we have not succeeded in determining unerringly the kind of fungus, and, by its culture, in producing artificially the disease in exact conformity with its natural course, nevertheless the cause of diphtheria is a micro-organism.

This micro-organism settles itself principally in the oral cavity, penetrates the epithelium of the mucous membrane, and, increasing, produces a transformation in which springs forth a chemical poison. This ptomaïne (and after all not the fungus itself) gives rise to all the subsequent complex of symptoms on account of profound injury to cell-life.

This alkaloid diffuses itself in the epithelium and in the fluids of the tissues and cells. In response to the ovulation it causes the multiplying white blood corpuscles to take up the poison and perish. The effete material absorbed poisons new cells. This destructive process goes on in the mucous membrane of the throat, tonsils, and the lymphatic glands belonging to the primitive group.

The blood conveys the diseased cells (acted on by the chemical poison) to all parts of the body; these cells injure the vascular walls, the spleen, kidneys, and nervous centres. The same form of cell-destruction on all sides! The nuclear membrane dissolves; the nuclear substance, cellular substance, chromatin, break down and are transformed into a conglomerate mass. Globules, flakes, scales, granules, finely-pulverized, crumbling, dusty ruins is all that remains of the cells. Through an admixture of a fibrinous exudate from the blood arises a retiform, fibrous coagulum out of the ruins.

The peculiar brightness of the hyaline of degenerated albuminoid substances makes its appearance; increasing serous saturation liquifies the perishing mass. If this mass lies near the surface it breaks through and coagulates, forming the so-called "diphtheritic membrane"; if it lies deep the end is liquefaction and perfect dissolution.

Thus, from the immigration of the fungus, comes first a local deposit, and then a universal infection.

Since Oertel determines for this disease the morbid processes which take place in most diverse organs, thus enriching cellular pathology by an exhibition of cells, carrying on a struggle with the diphtheria-fungus, he has probably established a fact that similar cell-alterations may also occur in other infectious diseases (vide Ziemssen's Archiv., Bd. 42, s. 511). Therefore, his work has a significance of all the more general importance.

A CASE OF COCAINE POISONING.

Reported by Dr. Friedrich Haenel (*Berliner Klinische Wochenschrift*, No. 44). Abstracted and translated by Dr. Lester Curtis.

A dentist injected 0.1125 (1¾ grains) of cocaine in two doses into the gum of a girl nineteen years old, preparatory to the extraction of a tooth. Immediately after the extraction signs of unconsciousness appeared; then she grew very pale, fell, and was attacked with severe convulsions which were interrupted by short pauses. Nitrite of amyl and cold applications to the head were of no benefit.

"When I saw the patient she lay upon the sofa perfectly unconscious, groaning; her face was slightly cyanotic, and she did not react to any sort of irritation. The whole body, buttocks and extremities, were agitated by violent clonic convulsions. These continued for five hours, with pauses which became gradually longer and more frequent. The facial muscles were not affected by the convulsions. The pupils were moderately wide and without reaction. There was no exophthalmus. The skin felt warm and dry. The temperature in the axilla,

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taken at the end of this stage, was 38.2 [100.8° Fahr.] The pulse, in the beginning, could not be counted; later, it was 176 beats a minute. The frequency of breathing amounted to 44. After the cessation of the convulsions, the patient lay quiet for two hours, all the time unconscious.

"After her return to consciousness, she stated that she was perfectly sensible of the second cocaine injection, but did not remember anything after that. She was unable to stand; when she was straightened up she doubled together again; she could sit only doubled up; she was unable to raise her arms or to press the hand offered to her. She had intense photophobia, diminished sensibility of the skin, anæsthesia of the mucous membrane of the nose and oral cavity, entire loss of taste and smell, dryness and burning of the throat, thirst, severe retching, pulse 132, respiration 28. Cardalgia then occurred, at first slight, but becoming, afterward, very severe.

"In addition, retention of urine occurred for twenty-four hours, but, after the first scanty, concentrated urine was voided, the secretion became normal. There was sleeplessness for thirty hours, entire loss of appetite for four days. The other symptoms disappeared after two or three days. She could walk with trembling knees after forty hours. The cardialgia remained for six days. All symptoms finally disappeared.

"It may be mentioned, in addition, that the girl, except for a fractured bone and slight chlorosis, had always been well. She denied, positively, ever having suffered from convulsions. Unfortunately, I was unable to get any information from her parents. The heart and other internal organs were healthy, menstruation normal."

These symptoms are like those produced by the drug in the lower animals. These are lessened sensibility, unconsciousness, epileptiform convulsions, "which have a cortical origin, and are dependent on anæmia of the cortex, conditioned on vaso-motor spasm." There is enormous increase in the blood pressure and great acceleration in the heart's action, dependent on irritation of the acceleratory apparatus. Secretion from the mucous membrane and kidneys is diminished.

The largest safe dose of cocaine is stated by Lauderer to be 0.15 (¼ grain). Decker says 0.02 (3-10 grain), possibly, under special conditions, 0.03 (45-100 grain). Doses, however, of 0.1 (1½ grains) to 0.2 (3 grains) have been given without bad results, showing of course that great difference in the toleration of the drug exists. The largest dose ever given by Dr. Haenel was 0.035. This dose was followed by no unpleasant results.

The treatment for cases of cocaine poisoning has been indicated in the history of the case. Nitrite of amyl acts very well in slight cases.

DISINFECTION AND DEODORIZING OF IODOFORM.

In the *Pharmaceutische Post* for September 30, 1888, Dr. R. Jaksch makes a statement, which we feel confident will be a surprise to many of our readers, that iodoform as an antiseptic and as a parasiticide is absolutely worthless, and he quotes a number of authors who have proved that iodoform scarcely interferes with the development of the various kinds of micro-organisms. The grounds, then, on which is based the wonderful success which has followed the employment of iodoform in the treatment of wounds seem to be thoroughly unknown, unless it may be that iodoform prevents the formation of ptomaïnes in the wound. To sterilize iodoform, Dr. Jaksch recommends its combination with an antiseptic, selecting one which would not be poisonous in the quantities which are usually employed as a local application to wounds. The author states that he has found that the antiseptics which themselves possess a specific odor, when combined with iodoform, not only reduce the odor of the latter, but largely

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lose their own odor, and by combination of iodoform with carbolic acid, thymol, naphthalin, and creolin, iodoform is both sterilized and deodorized. Of all these substances, the author gives the preference to creolin on the following grounds: *First*—It is the best antiseptic. *Second*—It is entirely free from any poisonous action on the higher organisms; as much as seven hundred and fifty grains have been given internally to dogs and horses without the production of the slightest symptom of poisoning. *Third*—Even in small amounts creolin thoroughly does away with the penetrating odor of iodoform.

Creolin-iodoform (1 to 2 per cent.) well rubbed up is a brownish powder of slight aromatic odor, soluble in alcohol and ether. When suspended in water the creolin is dissolved while the iodoform remains undissolved. Dr. Jaksch states that for a month or more he has been using creolin-iodoform in only 2 per cent. mixtures in the treatment of various wounds, ulcers, and abscesses, both in the form of a powder and as iodoform gauze, and he believes that his results are even better than would follow the use of the pure iodoform.—*The Therapeutic Gazette.*

BOOK REVIEWS AND NOTICES.

THE EAR AND ITS DISEASES; being Practical Contributions to the study of Otology. By SAMUEL SEXTON, M. D. Edited by CHRISTOPHER J. COLLES, M. D. With numerous original illustrations. New York: William Wood & Co. Chicago: W. T Keener. Pp. xii and 461. 1888.

In this work on the ear, the author has not attempted to cover the whole field of otology, but has selected certain subjects which he considered deserving of special attention. Some of them have been more or less fully treated of in other works upon the ear; others that are related directly or indirectly to the subject of otology are here presented in a way calculated to attract more attention to them than they have before received. The book reflects the ideas of the author based largely on his individual practice, which has been large and afforded him good opportunity of observing, and contributing to the growth of scientific otology, which is of so recent origin. Much as the author has restricted the scope of his work, it yet gives a good idea of the recent advances made in this specialty, and suggests how others can and should be made in the proper development of the subject. It thus becomes a valuable contribution to its literature.

A TEXT-BOOK OF HUMAN PHYSIOLOGY. By AUSTIN FLINT, M. D., LL. D., Professor of Physiology and Physiological Anatomy in The Bellevue Hospital Medical College, New York., etc., etc., etc. With three hundred and sixteen figures in the text, and two plates. Fourth edition, entirely rewritten. New York: D. Appleton & Co. Chicago: W. T. Keener. Pp. xvii and 872. 1888.

In the eight years which have elapsed since the third edition of Flint's Physiology was issued, such changes have occurred that the author decided to re-write the book rather than to attempt to so remodel the preceding edition as to make it in keeping with the requirements of a text-book on physiology at the present time. Acceptable as the earlier editions were in their day, this fourth edition will be found more so, and the author and publishers alike are to be congratulated upon the results of the work in this edition. The text is clear and concise; the illustrations are clean cut, and serve to illustrate and explain, not to mislead and confuse, as too often happens in inferior illustrations.

Printed on good paper, with perfect type, makes reading of the book a pleasure.

It is divided into twenty-six chapters, which cover the field of physiology very fully. An effort has been made to present matters now generally accepted as facts, rather than to state conflicting theories yet sub judice. It may, therefore, be accepted as representing the most advanced ideas of human physiology of the present day, and it will continue to be regarded as a standard text-book on the subject. A more detailed review of a work whose general characteristics are so well known would seem superfluous. It merits the commendation it will receive.

A MANUAL OF OPHTHALMIC PRACTICE. By CHARLES HIGGENS, F. R. C. S. E., Lecturer on Ophthalmology at Guy's Hospital Medical School, etc., etc. With illustrations. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener. Pp. viii and 314. 1888.

This manual is divided into two parts. The *first* consists of twelve chapters, beginning with refraction, followed by the methods of examining the eye, and then considers very briefly affections of the eye and its appendages.

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Part *second* consists of seven chapters, and relates to operations, both upon the appendages of the eye and upon the eyeball, with such details relating to operations as will be found serviceable to beginners in ophthalmic work, for whose benefit the work seems chiefly to have been prepared. The author's aim has been to be concise and practical.

HAND-BOOK OF HISTORICAL AND GEOGRAPHICAL PHTHISIOLOGY. By GEORGE A. EVANS, M. D. New York: D. Appleton & Co. Chicago: A. C. McClurg & Co. 1888. 8vo. Pp. v and 295.

This is a brief compilation from all available sources on the history and geographical distribution of tuberculosis of the lung. The author seems to have chosen a most unfortunate and unscientific title. Phthisis should not be used except in its strict etymological sense. It should be forever divorced from any essential relation with pulmonary tuberculosis. The condensation from the "Tenth U. S. Ceusus Report" is a valuable epitome, but it is that alone. The book is written without an argument or object. It overflows with quotations. The most valuable part is the statistical tables showing the death-rate from consumption in each of the States by counties. B. H.

THE MEDICAL NEWS VISITING LIST FOR 1889. Weekly (dated, for 30 patients). Monthly (undated, for 120 patients per month). Perpetual (undated). Philadelphia: Lea Brothers & Co., 706 and 708 Sansom St.

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DOCTOR AND PATIENT. By S. WEIR MITCHELL, M. D., LL. D. Philadelphia: J. B. Lippincott Company. Pp. 177. 1888.

The author, in his introductory, says the essays—seven in number—which compose the volume, "deal chiefly with a variety of subjects to which every physician must have given more or less thought. Some of them touch on matters concerning the mutual relations of physician and patient, but are meant to interest and instruct the laity rather than the medical attendant. The larger number have from their nature a closer relation to the needs of women than of men."

Much of the book is a natural outgrowth of the author's experience with women having real or imaginary nervous troubles, and the peculiarities which they exhibit under such circumstances. What is said regarding *The Physician* is a pen-picture of much that is experienced in the everyday life of most physicians.

Regarding his advocacy of camp-life for women there will probably be found wide difference of opinion in the profession and out of it, but he partly forestalls argument by saying "All kinds of modifications of the life I advise are possible."

The essays are written in any easy—almost colloquial—style, leaving an impression that they may have been written as much for the amusement of the writer as of the reader.

BOOKS RECEIVED.

Chemical Experiments for Medical Students. By W. S. Christopher, M. D.

Transactions of the Thirty-eighth Annual Meeting of the Illinois State Medical Society. 1888.

The Physicians' Interpreter. In Four Languages. By F. A. Davis.

Index Catalogue of the Library of the Surgeon-General's Office, U. S. Army. Vol. IX.

Ptomaïnes and Leucomaïnes. By Victor C. Vaughan, Ph. D., M. D., and F. G. Nooy, M. S.

Manual of Chemistry. A Guide to Lectures and Laboratory Work, etc. By W. Simon, Ph. D., M. D.

A Text-Book of Pharmacology, Therapeutics, and Materia Medica. By T. Lauder Brunton, M. D., D. Sc., F. R. S.

A Manual of General Pathology. By Joseph F. Payne, M. D. Oxon., F. R. C. P.

Therapeutics; Its Principles and Practice. Seventh edition. By H. C. Wood, M. D., LL. D.

A System of Gynæcology. By American Authors. Vol. II.

Hand-Book of Historical and Geographical Phthisiology. By George A. Evans, M. D.

Fifteenth Annual Report of the Secretary of the State Board of Health of Michigan. 1887.

A Manual of Ophthalmic Practice. By Charles Higgens, F. R. C. S. E.

The Urine and the Common Poisons. By J. W. Holland, M. D.

The Diseases of the Chest. By Vincent D. Harris, M. D., F. R. C. P.

Practical Anatomy. Seventh edition. By Christopher Heath, F. R. C. S.

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The Ear and its Diseases, etc. By Samuel Sexton, M. D.

Landmarks, Medical and Surgical. By Luther Holden.

A Text-Book of Human Physiology. By Austin Flint, A. M., M. D.

Treatise on the Diseases of Women. By Alexander J. C. Skene, M. D.

Second Annual Report of the State Board of Health of the State of Pennsylvania. 1886.

A Manual of Dietetics. By W. B. Pritchard, M. D.

Morrow's Atlas of Venereal and Skin Diseases. Fasciculi 7 and 9.

PAMPHLETS RECEIVED.

Cellular Digestion. Its Utility in Pathological Processes. By N. S. Davis, Jr., A. M., M. D.

Conditions Rendering Diagnosis Difficult in Pelvic and Abdominal Diseases. By T. B. Harvey, M. D. LL. D.

The American Hip-Splint. By A. B. Judson, M. D.

Annual Report of the Commissioner of Pensions for 1888.

Transactions of the Medical Association of the State of Missouri for 1888.

The Orthopedic Treatment of Paralysis of the Anterior Muscles of the Thigh. By A. B. Judson, M. D.

Transactions of the Medical Society of the State of West Virginia.

Surgery as a Science and an Art. By George E. Frothingham, M. D.

On the Detection of Coloring Matters in Whisky. By J. H. Long.

On the Stability of the Thallons Iodide, and the Determination of Thallium. By J. H. Long.

On the Densities and Refraction Indices of Certain Oils. By J. H. Long.

A Synopsis of the Medical Botany of the United States. By J. M. G. Carter, A. M., M. D., Ph. D.

The Medical News Visiting List for 1889. Lea Brothers & Company.

The Physicians' Visiting List for 1889. P. Blakiston, Son & Company.

Uterine Fibroids Treated by Ergot. By Daniel T. Nelson, A. M., M. D.

Report on Hydrophobia. By Charles W. Dulles, M. D.

The Causation of Cold Weather Diseases. By Henry B. Baker, M. D.

On Bacterial Invasion of the Inner Ear in the Course of Diphtheria. By S. Moos, Heidelberg. Illustrated by H. S. B. McCauley, M. D.

The Preferable Climate for Phthisis. By Charles Denison, A. M., M. D.

The Operation for Stellate and Bilateral Laceration of the Cervix Uteri. By Hubbard W. Mitchell, M. D.

Recent Advances in State Medicine. By Henry B. Baker, M. D.

Carie Del Temporale. Pil. Dott. Emelio de Rossi.

Medical Communications of the Massachusetts Medical Society.

Experimental Researches Respecting the Relation of Dress to Pelvic Diseases. By J. H. Kellogg, M. D.

Inebriate Asylums and their Work. By T. D. Crothers, M. D.

The Primary Purpose of the Membrana Tympani. By S. O. Richey, M. D.

Nystagmus in Connection with Diseases of the Ear. By Charles J. Kipp, M. D.

The Contagiousness of Phthisis. By Lawrence F. Flick, M. D.

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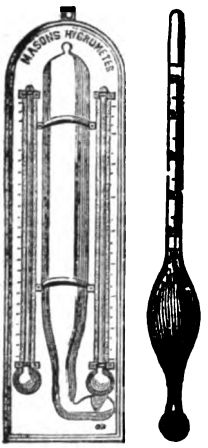

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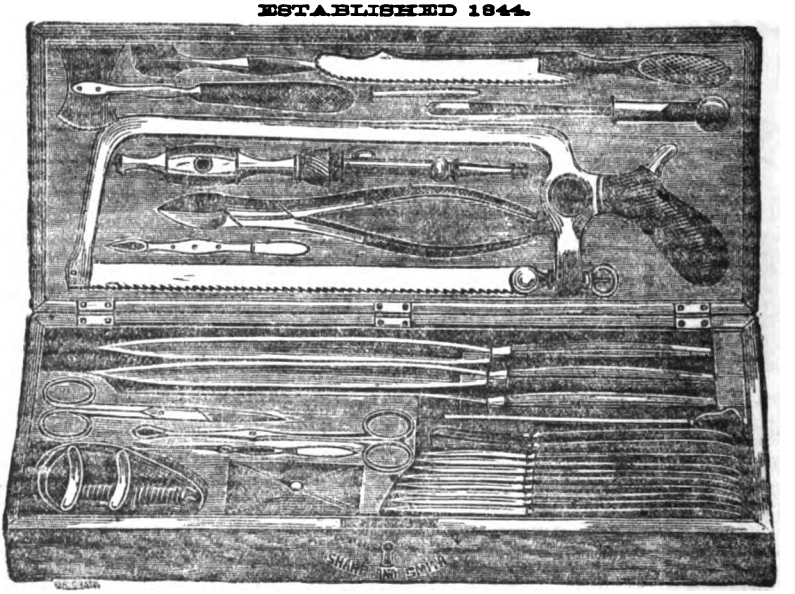

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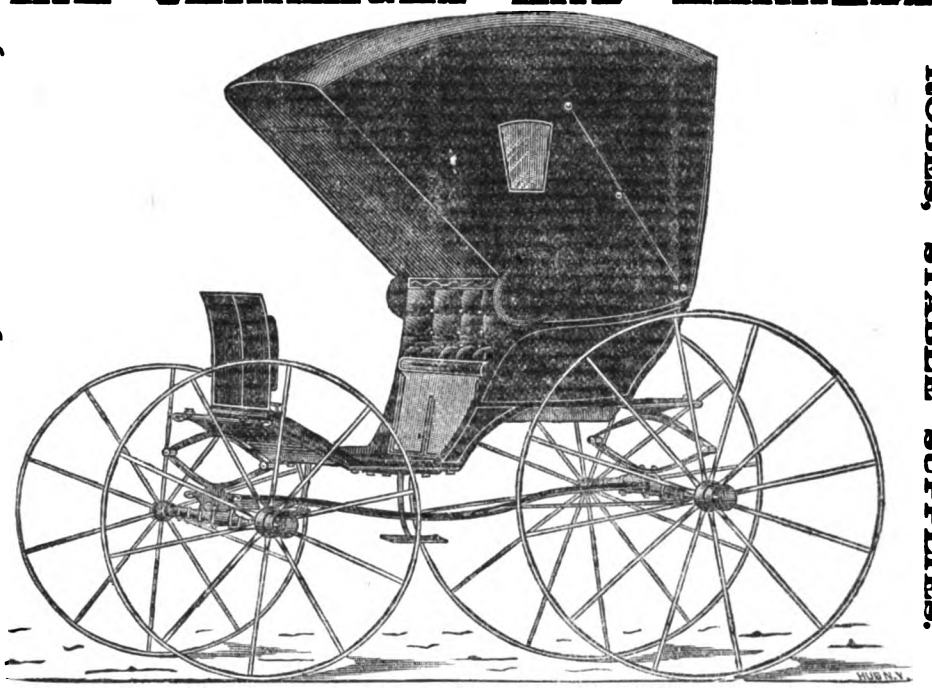

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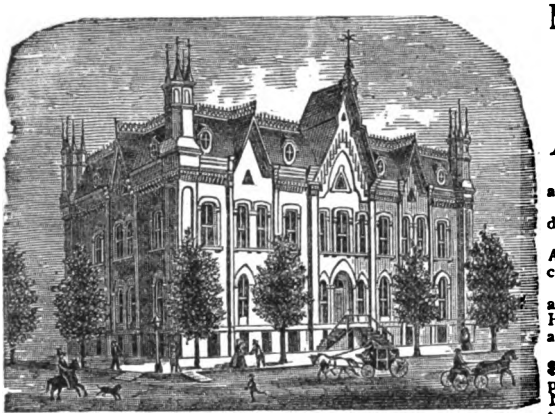

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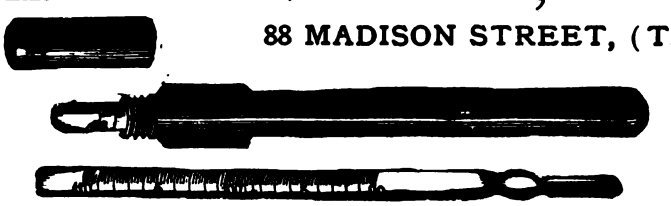

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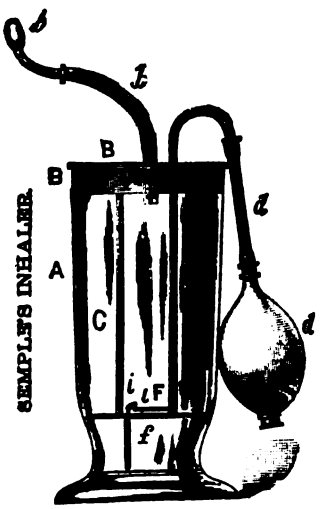

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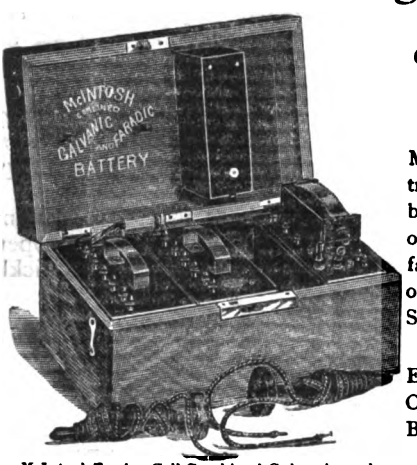

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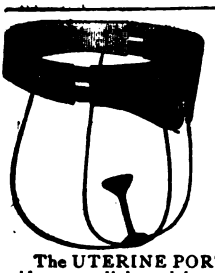

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PUBLISHED MONTHLY UNDER THE AUSPICES OF
THE CHICAGO MEDICAL PRESS ASSOCIATION.

RAND, McNALLY & CO., PRINTERS.

Entered at the Post Office at Chicago, for transmission through the mails as second-class matter.

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The Chicago Medical Journal and Examiner.

Volume 57. Number 6.

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